



County Palatine of Chester.

REPORT

OF THE

MEDICAL OFFICER OF HEALTH

FOR THE YEAR 1912.

BY

MEREDITH YOUNG, M.D., D.P.H.,

Of Lincoln's Inn, Barrister-at-Law.

PRESENTED TO THE

Public Health & Housing Committee

OF THE COUNTY COUNCIL,

July 18th, 1913.

CHESTER:

PHILLIPSON AND GOLDER, PRINTERS, EASTGATE ROW AND FRODSHAM STREET.



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REPORT
OF THE
Medical Officer of Health,
For the Year ending December 31st, 1912.

*To the Public Health and Housing Committee of the
County Council of the County Palatine of Chester
and to the Members of the County Council.*

PREFATORY NOTE.

CHESTER,

July 3rd, 1913.

*To the Chairman and Members of the
Public Health Committee of the
Cheshire County Council.*

MR. CHAIRMAN AND GENTLEMEN,

I beg to present you herewith with my Report on the health of the Administrative County for the year 1912, together with abstracts of the Reports from the District Medical Officers of Health and some comments on the latter.

There are certain matters for congratulation in the vital statistics—a further slight reduction in the general death-rate and in the rates shewing infant mortality, zymotic disease mortality and prevalence and the deaths from pulmonary tuberculosis.

The birth-rate shews a further decline and from the figures I quote from previous Reports and the chart illustrating these your Committee will at once observe the continuity of this fall for many years. This matter has been so fully discussed in previous Reports that to say anything further about it now would probably result in mere iteration. I have I think come to the philosophical state of mind on this subject so well expressed in the German saying :

“Ist's Gottes Werk so wird's besteh'n
Ist's Menschenwerk wird's untergeh'n.”

Your Committee will find an excellent record of sanitary work carried out by the Councils and officials of the several Sanitary Districts in the County—particularly in the matters of housing inspection and the control of tuberculosis. These two matters are very closely linked together and, moreover, are interwoven with many other influences affecting the public health. For this reason it is gratifying to see such signs of

activity in these directions as are evidenced by the District Reports.

I must confess to a little disappointment that the work of preventing pollution of rivers has progressed so little as it has. Good work has been done, it is true, but in a County such as this there are really not many serious difficulties in the way of securing greater purity of rivers and streams and one is therefore always hoping that progress will be fairly rapid. The fault is very largely my own, for with the constant additions to work which are taking place every few months I have not been able to carry out as many inspections as I had planned. I have made a suggestion for the remedy of this state of affairs for the consideration of your Committee.

It is with regret that I again have to allude to the omission of any reference to the Report from the Borough of Maeclesfield except mere statistics. This is due to the fact that the full Report has not yet been received. This Report is always of considerable interest and its compulsory omission is therefore greatly to be regretted.

I wish to again thank your Committee for your unvarying kindness and courtesy and for the careful consideration of the many matters I have placed before you. I also beg to thank all those with whom I have officially been brought in contact for their courtesy and assistance.

I have made certain recommendations, which are summarised at the end of the Report, for the consideration of your Committee at some convenient opportunity. The chief of these relates to the appointment of a Sanitary Inspector and here I may say that if some such help is not given to me at an early date it will be next to impossible for me to continue to carry on the work I am doing at present. I therefore invite your Committee's earnest consideration of this particular matter as early as possible.

I have the honour to be,

Mr. Chairman and Gentlemen,

Your obedient Servant,

MEREDITH YOUNG.

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REPORT OF THE Medical Officer of Health

For the Year ended December 31st, 1912.

Section I.—Area and Population.

Area.

In the Census Report of 1901 this is given as 645,918 acres, and in the Census Report of 1911 as 644,172. The diminution is due to the extension of the Stockport County Borough boundaries in 1901.

This area is distributed as follows :—

7 Municipal Boroughs	...	...	18,937 acres.
35 other Urban Districts	...	...	80,732 „
12 Rural Districts	...	...	544,503 „
<hr/>			
Total	...	...	644,172 „
<hr/>			

POPULATION—CENSUS, 1911.

Population.

At the Census of 1901 this was 599,070, but the extension of the County Borough of Stockport in Nov., 1901, reduced this population to 593,865. At the Census of 1911 the population of the Administrative County was 676,275.

At Midsummer, 1912, the population was estimated to be 688,038, distributed as follows :—

7 Municipal Boroughs ...	...	252,823 persons.
35 other Urban Districts	...	249,652 „
12 Rural Districts	...	185,563 „
Total	...	<u>688,038</u> „

Census, 1911.

The Report of the 1911 Census, shows the following figures for the Administrative County :—

Area in Statute Acres (Land and Inland Water)	644,172
Families or Separate Occupiers	150,546
Persons	676,275
Males	321,761
Females	354,514
Increase since 1901	77,205

The figures for the various Districts are as under :—

Municipal Boroughs. (7)	Population.		Increase or Decrease of Population in Intercensal Period.		Families or Separate Occupiers
	1901.	1911.	Increase.	Decrease.	1911.
Congleton ...	10707	11310	603	—	2665
Crewe ...	42074	44970	2896	—	9955
Dukinfield ...	18929	19426	497	—	4626
Hyde ...	32766	33444	678	—	8019
Macclesfield ...	34624	34804	180	—	8436
Wallasey ...	53579	78514	24935	—	16921
Stalybridge ...	27673	26514	—	1159	6399

Urban Districts. (35)	Population.		Increase or Decrease of Population in Intercensal Period.		Families or Separate Occupiers, 1911.
	1901.	1911.	Increase.	Decrease.	
Alderley Edge ...	2891	3143	252	—	701
Alsager ...	2597	2743	146	—	640
Altrincham ...	16831	17816	985	—	4107
Ashton-upon-Mersey ...	5563	7236	1673	—	1746
Bollington ...	5245	5225	—	20	1212
Bowdon ...	2788	3044	256	—	665
Bredbury and Romiley	7185	8684	1499	—	2115
Bromborough ...	1891	1974	83	—	403
Buglawton ...	1452	1439	—	13	337
Cheadle and Gatley ...	7916	9914	1998	—	2199
Compstall ...	875	908	33	—	223
Ellesmere Port and Whitby ...	4275	10366	6091	—	1963
Hale ...	4562	8351	3789	—	1945
Handforth ...	911	935	24	—	211
Hazel Grove & Bramhall	7934	9634	1700	—	2268
Higher Bebington ...	1540	1689	149	—	353
Hollingworth ...	2447	2581	134	—	634
Hoole ...	5341	5929	588	—	1224
Hoylake & West Kirby	10911	14029	3118	—	2890
Knutsford ...	5172	5760	588	—	1135
Lower Bebington ...	8398	11412	3014	—	2300
Lymm ...	4707	4989	282	—	1177
Marple ...	5595	6484	889	—	1590
Middlewich ...	4669	4910	241	—	1094
Mottram in Longdendale	3128	3049	—	79	756
Nantwich ...	7722	7815	94	—	1691
Neston and Parkgate ...	4154	4596	442	—	935
Northwich ...	17611	18151	540	—	3831
Runcorn ...	16491	17354	863	—	3767
Sale ...	12088	15046	2958	—	3563
Sandbach ...	5558	5723	165	—	1340
Tarporley ...	2644	2604	—	40	598
Wilmslow ...	7361	8153	792	—	1947
Winsford ...	10382	10772	390	—	2372
Yeardsley-cum-Whaley	1487	1659	172	—	390

CENSUS, 1911.

Rural Districts. (12)	Population.		Increase or Decrease of Population in Intercensal Period.		Families or Separate Occupiers,
	1901.	1911.	Increase.	Decrease.	1911.
Bucklow	19890	22870	2980	—	4959
Chester	10908	12448	1540	—	2381
Congleton	12220	12821	605	—	2755
Disley	2827	2958	131	—	716
Macclesfield	15740	16628	889	—	3659
Malpas	4488	4643	155	—	1030
Nantwich	23197	24992	1795	—	5458
Northwich	22073	23270	1198	—	4983
Runcorn	23244	28216	4972	—	6211
Tarvin	12614	13187	573	—	2867
Tintwistle	2105	2193	88	—	551
Wirral	13905	19024	5119	—	3836

Wallasey Borough shows the largest intercensal increase, no less than 24,935; then in order come Ellesmere Port and Whitby, 6,091; Wirral Rural, 5,119; Runcorn Rural, 4,972; Hale Urban, 3,789; Hoylake and West Kirby, 3,118; Lower Bebington, 3,014; Bucklow Rural, 2,980; and Sale Urban, 2,958.

The important part played by the Wirral Peninsula in the increase in population will readily be seen. Wallasey is sixth in the list of large increases in population out of 98 towns, the intercensal increase being here 46.5 per cent.

The only serious decrease is in the Borough of Stalybridge, where the population at the census of 1911 was 1,159 less than in 1901. The other decreases were Mottram (79), Tarporley (40), Bollington (20), and Buglawton (13).

The total population of the Administrative County, inclusive of the 3 County Boroughs (Birkenhead, Chester and Stockport) at the census of 1911 was 954,919, showing an increase of 14.2 per cent. in the intercensal period. This figure places Cheshire thirteenth in the list of Counties from the population point of view.

Density of Population.

This is shewn in the first Table of Statistics given at the end of this Volume. In the 7 Municipal Boroughs it averages 13.3 persons per acre, in the 35 other Urban Districts 3.09 persons per acre, and in the 12 Rural Districts 0.34 persons per acre. Taking the Administrative County as a whole it averages 1.06 persons per acre. The variation is of course considerable in different parts of the County. In Altrincham Urban District it is highest, namely, 27.07 persons per acre, and this figure is closely followed by Wallasey Municipal Borough (24.18), Crewe Municipal Borough (20.70), and Hoole Urban District (17.75). The lowest figures for density of population are found in Tintwistle Rural District (0.16), Macclesfield Rural District (0.21), Malpas Rural District (0.21), Tarvin Rural District (0.23), and Nantwich Rural District (0.25), whilst several of the other Rural Districts shew figures only very slightly higher.

Tenements.

The proportion of tenements with less than 5 rooms, which averaged 41.0 per cent. of total tenements in the entire Administrative County at the Census of 1901, shewed considerable variations in the larger Urban Districts. The proportion then ranged from 15.0 per cent. in Crewe, and 19.7 per cent. in Wallasey, to 68.6 per cent. in Stalybridge and 71.6 per cent. in Hyde. These figures for the Census of 1911 are not yet available.

Dr. A. K. Chalmers, Medical Officer of Health for the City of Glasgow, has recently shown that the inmates of small tenements die at a greater rate than those of larger tenements. Thus in tenements of one room the inmates died at the rate of 33 in each 1,000 living, in two-roomed tenements at the rate of 21 per 1,000 in three-roomed tenements at the rate of 14 per 1,000 and in tenements of four or more rooms at the rate of only 11 per 1,000. The death-rate of children is markedly affected by the size and character of the tenement, for in one-roomed tenements children under one year of age in Glasgow died at double the rate of those living in four-roomed tenements. With respect to the infectious diseases of childhood Dr. Chalmers has reached the conclusion that the death-rate from these diseases is as follows in Glasgow :—

One-room tenements	...	...	16 per 1,000
two-room	„	...	12 „
three-room	„	...	7 „

These facts are of great importance in questions connected with the housing of the poor.

Section II.—Natural and Social Conditions of the Administrative County.

Many of the District Medical Officers of Health have given a short account of the natural and social conditions of their areas and I have pleasure in appending extracts from their Annual Reports on these points.

Taking the County as a whole, by far the larger part of it, according to Mr. Horace B. Woodward, F.R.S., F.G.S. (Stamford's Geological Atlas of Great Britain and Ireland), is a plain formed of new red rocks and covered with much boulder-clay and shelly drift gravel.

"In the western part of the county, as in the Wirral promontory, the Bunter sandstone and pebble-beds are overlain here and there by the Keuper sandstones. The latter are quarried for building-stone, and noted for footprints of Labyrinthodonts at Storeton, about three miles south of Birkenhead.

"Keuper sandstones resting on the Bunter constitute the chief water-bearing strata. Together they form the Peckforton Hills with Beeston Castle Hill, and also the scraps of Alderley Edge, where galena, copper-ore and cobalt-ore have been found.

"The eastern part of the county is formed chiefly of the red Keuper marls with rock-salt and brine springs at Northwich, Winsford, Middlewich, Sandbach, Church Lawton and Nantwich. The salt has been mined, but most of it is obtained by the pumping of brine. At Northwich especially the mining and pumping have led to disastrous subsidences of the land; and some of the meres in the county are probably due to this cause. Rhætic beds and Lower Lias, much concealed by drift, occur near Audlem.

"Coal-measures appear in the east, at Macclesfield and Stockport, in a productive coal-field which forms a prolongation of that of South Lancashire. Traces of coal-measures also occur along the borders of the Dee Valley near Great Neston. East of Macclesfield, and at Congleton Lower Carboniferous rocks form high moorlands with patches of shelly drift at heights up to 1,250 feet. There are lime-works at Astbury, in the Carboniferous limestone on the borders of Congleton Edge.

NATURAL AND SOCIAL CONDITIONS.

“Carrington Moss in the valley of the Mersey has been found useful and profitable as a receptacle for the solid organic refuse of Manchester. There are tracts of blown sand at New Brighton, Hoylake and West Kirby. The coast at Leasowe Castle has suffered much from marine erosion.”

The remarks of the several District Medical Officers of Health are as under :—

CREWE MUNICIPAL BOROUGH.—“The Borough is situated in the S.E. part of Cheshire upon the Valley Brook, a tributary of the river Weaver. The mean altitude is about 170 feet above sea level, and varies from 113 feet at the lowest part of the Sewage Farm to 200 feet at Hightown.

HEIGHT ABOVE SEA LEVEL.

Sewage Farm (West of Queen's Park)	...	113 feet
The Valley	... ..	145 „
Market Square (South West Corner)	...	184 „
Isolation Hospital	... ..	182 „
Nantwich Road (East end)	... ..	188 „
Hightown (St. Paul's Church—North side)	...	200 „

“The Borough has a total area of 2,185 acres, comprising the Civil Parish of Monks Coppenhall and parts of the Civil Parishes of Church Coppenhall, Shavington-cum-Gresty, and Wistaston, the three last named parts being added on 24th March, 1894, by Order of the Local Government Board.”

DUKINFIELD MUNICIPAL BOROUGH.—“Dukinfield is situated on the left bank of the river Tame, a tributary of the Mersey. The North and West parts of the town are near the river, the East, the most elevated part of the district, being some considerable distance from it.

“The river is 279 feet above the sea level, but at Hough Hill, the height is about 700 feet. The centre of the town is fairly well populated, but other districts and more particularly the East, consist of farm land and open spaces ; so that Dukinfield, although to a large extent a manufacturing town, is in part rural and finds employment for some milk farmers. The sub-soil is in some places a loamy clay and in others sandstone, and the outcrop the Permian system. Underneath there are the coal-measures. Although at the present moment no coal pits are working, for many years coal mining was a very important industry in the district.

NATURAL AND SOCIAL CONDITIONS.

"The chief occupations of the inhabitants are—cotton manufacture (both spinning and weaving), engineering, boiler making, electric accumulator works, soap works, dye works, rope manufacture, carriage and wagon works, and one brewery. None of these industries are specially injurious to the health of the workers who, as a rule, are a fairly healthy class of men and women. The rateable value of the town is £77,592, and the amount of poor law out-relief is about £720.

"The District Infirmary, situated in the Borough of Ashton-under-Lyne, is well supported both by public and private charity, and many of the poor avail themselves of the benefits to be obtained from this excellent institution.

"The local Sick Nursing Institution is also supported by private charity, and the nurses' services are highly appreciated by the sick poor of the town."

WALLASEY MUNICIPAL BOROUGH.—"The Borough of Wallasey is a part of the Wirral Peninsula and itself forms a Peninsula, bounded by the River Mersey on the East, the Irish Sea on the North, Birkenhead and Wallasey Docks on the South and South-West, with a mile of flat land on the West between head of docks and sea. The ground rises from Seacombe in a back-bone along the middle of the district, reaching a height of 200 feet above the sea at New Brighton, affording splendid facilities for drainage East and West of this natural ridge. New red sandstone underlies all this district, at a variable depth, with pockets of alluvium, drift clay, gravel and marl.

"It is mainly a residential place, a large number of the inhabitants being engaged in business in Liverpool. Some large docks, forming part of the Port of Liverpool, are situated in the Borough. There are also in the district extensive Lairages, where imported sheep and cattle are killed. There is no occupation which would have any particular influence on the public health. No industries of any moment, beyond three large flour mills, are established in the Borough, employing any large number of men. Building operations, however, have in the last few years been very extensive.

"The number of persons admitted from the Parishes of Liscard, Poulton-cum-Seacombe, and Wallasey, to the Workhouse Infirmary and Sanatorium during the year ended December 31st, 1912, was 269.

NATURAL AND SOCIAL CONDITIONS.

“The number of ordinary cases admitted to the Workhouse for the same period from the said Parishes was 96.

“Amount of Poor-Law Out-Relief paid in those Parishes, £2,718 12s. 3d.”

HIGHER BEBINGTON URBAN DISTRICT.—“Higher Bebington is situated two miles south of the Borough of Birkenhead. It is divided into an upper and lower ward, the former corresponding to the part of the district on the hillside, and the latter to the part at the base of the hill. The geological formation of this hill on which the greater part of the urban district is built is Lower Keuper sandstone belonging to the triassic rocks. The characteristic rock in the Wirral Peninsula is new red sandstone of the Bunter Group, and occurs at a deeper level than the white freestone of Storeton Hill.

“Stone quarrying is the staple industry. Working in this stone does not seem to be associated with respiratory trouble or other form of disease. Women in a number of instances find occupation in laundry work for households in the neighbouring Borough of Birkenhead. A small area of land is available for allotments and is utilised for this purpose.”

LOWER BEBINGTON URBAN DISTRICT.—“The district is constituted by three townships, viz., Lower Bebington, New Ferry and Port Sunlight. In the two latter the soil is clay, whilst in the former a thin layer of marl and clay overlies the new red sandstone. Port Sunlight is laid out as a model village with wide roads and open spaces between the houses and both Lower Bebington and New Ferry possess public parks of wide extent. The town has, therefore, plenty of those ‘lungs’ which are so essential for the well-being of an urban community.

“To a certain extent the district is residential for business men who pursue their avocations in Liverpool. A large section of the population finds employment in the soapworks of Messrs. Lever, and artisans live in New Ferry who work in the neighbouring large centres of population.

“On the 17th December, 1912, 41 adults and 32 children were on the list of outdoor poor and resident in your district, viz. :—

	Adults.		Children.	
Bebington	6	...	3
New Ferry	33	...	29
Port Sunlight	...	2	..	—
		<hr/> 41		<hr/> 32

NATURAL AND SOCIAL CONDITIONS.

“In 1911 there were 48 adults and 21 children on the corresponding list.

“The Wirral Union in which the district is placed, is classified as semi-urban, that is a union in which between one-third and four-fifths of the population were living at the last census two or more to the acre.

“The number of paupers per 1,000 of the population is 10.51, as contrasted with an average of 16.74 in the 20 semi-urban unions in the Local Government Board Inspector's District.”

BOLLINGTON URBAN DISTRICT.—“The District of Bollington comprises 1291 acres and is situate in a valley and on its adjacent hill sides. It lies on the westerly edge of the east Cheshire range of hills which are on the fringe of the southerly extremity of the Pennine Chain. It is distant about $3\frac{1}{2}$ miles from the town of Macclesfield, in a north-easterly direction. From its position it will be seen that it is subject to much rain and cold winds. The character of the soil and subsoil varies greatly. Generally speaking it is sandstone and clay with some coal measures. It is in the part lying in the valley that the population is densest.

“The staple industry of the district is the cotton trade. In it are three mills engaged in fine cotton spinning and doubling, one in cotton weaving, and another in calico printing, whilst just beyond the boundary is another engaged in calico bleaching. The humidity of the atmosphere marks the place out as especially suited for fine spinning. The streams running through are taken advantage of by the bleaching and calico printing works.

“There is also a large paper staining works situate in the centre of the village. During the latter half of the year fustian cutting has been commenced in a mill for a long time previously disused.

“Outdoor employment is found either amongst the numerous quarries of the district or at the fire-clay works and coal pit at Pott Shrigley, a couple of miles away.

“The different occupations followed in the district are generally of a healthy character. Any harmful influence that mill life may have in large towns is neutralised here by the situation of the mills and of the workers' homes in a healthy and open country district, lying as it does among the hills of East Cheshire.

“There is very little pauperism, the amount of Poor Law Relief being about £266 12s. 1d. per annum. Hospital and

NATURAL AND SOCIAL CONDITIONS.

gratuitous medical relief is provided for and to some extent taken advantage of, mainly at the Macclesfield Infirmary.

“Another factor has, however, to be taken into account. During the spring and summer, and indeed into the autumn, an appreciable exodus took place. Most of those leaving the village were bound for Canada and a few to Australia. It is stated that in the spring of the present year no less than a hundred and fifty more are leaving for the Colonies.

“On the other hand there are undoubtedly new-comers settling in, but not in the same proportion as those leaving. It will thus be seen that it is quite impossible to estimate with any exactitude the number of the population. It has been considered best therefore to take the census figures as being approximately correct for the purposes of this report.

“This matter of emigration, should it continue over a series of years, must mean a serious matter for the village. As is usual most of those attracted to the Dominion come from the young and vigorous members of society. How is it to be accounted for? What leads men who have been born and bred here and who have been brought up to the work their fathers have done before them, to make such a great change in life? There would seem to be little connection between mill life in the old country and the new life in Canada. At the present time there is evidently a great demand for new colonists in that country. Those who left their homes a year ago write glowing accounts of their new found prosperity, and urge upon their friends to come across too, and frequently with the promise of work waiting for them on their arrival. On this side young fellows are feeling that often advancement in the mills is a question of a long waiting-time, and meanwhile they must be content with a small wage in many cases. Particularly this is stated to be so by the piecers. These work under the spinners and are paid by them on what are evidently standard rates of wages. Rates of 14/- and 16/- per week rule amongst this class of men, who are generally in the ‘twenties’ of their years of life. To such the letters from abroad appeal in a way which many find it difficult to refuse.

“Amongst the quarrymen there is a very evident cause in the decline that has been steadily going on for some years in the stone trade. These, and other men in the building trade, readily find work in the new and growing countries. The question seems to settle itself into the old one of supply and demand, and unfortunately for Bollington the demand at the present seems to be greater across the seas.

NATURAL AND SOCIAL CONDITIONS.

"The census shewed that there were 1,212 inhabited houses. Since then one combined house and shop has been built and inhabited in 1911 and two new houses have been built last year. No houses have been closed for habitation during the year. At the present time there are about 16 houses uninhabited. This is a greater number than has been the case for some considerable time, and is due largely to the tide of emigration.

"The houses are for the most part built of stone or stone and rubble. These have no damp-proof courses, and in some cases are in consequence damp. Some of the older houses have been built against the hill-side with the result that the back walls and rooms of such are damp also. In these cases a determined effort has been made for some time past to have the earth and rubble removed from the back and an air space made right round the house. Where this has been done effectively there is no doubt of the improvement it has made in the interior of the house. It has been found difficult to induce some of the landlords to push on with this matter. These old houses generally consist of two rooms downstairs and two, rarely three, upstairs. Such accommodation is not at the present time adequate for a growing family.

"The newer type of house is as a rule built of brick with stone-work in front. These have a proper damp course and cavity wall and so are freer from the complaint of being damp. They have, generally speaking, a sitting room, living room or kitchen and scullery downstairs, with three bedrooms and, in some cases, a bathroom upstairs. Such a house is much more suitable to maintain the decencies of family life than the older type.

"Before a house can be built the Council require plans of the same to be submitted in duplicate. These are examined by the surveyor who reports on them to the Highway Committee. If in order they are then passed by the Council, when building can be commenced. If found not to be in conformance with the byelaws they are returned to the builder, who is required to so alter them as to make them so."

BREDBURY AND ROMILEY URBAN DISTRICT.—The physical features and general character of the district are hilly farm land, roughly divided into halves by one of the Pennine range of hills; Romiley and about a third of Bredbury being on the south side, and the other two-thirds of Bredbury on the north.

"The Peak Forest Canal runs through the district from Marple to Hyde, and the river Goyt winds round the border of part of

NATURAL AND SOCIAL CONDITIONS.

Romiley and Bredbury. There are several mills and other works in both parts of the district, including hat-works, engineering works, a colliery, two brickfields, and cotton mills, also a large incandescent mantle works, employing a large number of girls. Employment at all these has been steady throughout the year.

"The general condition of the population is a well-to-do industrial one, with a number of small farmers and shopkeepers. Many residents are engaged in business in Manchester, Stockport, and Hyde, and the number of these increases year by year, new house property being built to accommodate them as required."

BROMBOROUGH URBAN DISTRICT.—"Bromborough is situated on the western bank of the river Mersey and on the main road from Chester to Birkenhead. The soil is loam over new red sandstone.

"The district is a residential one for Liverpool business men, but on the branch of the Mersey called Bromborough Pool an industrial population has been established in connection with Price's Candle Works. These works find employment for over 650 men and boys, and 60 women and girls. A portion of the factories of Messrs. Lever are in the district, the persons numbering 1,685 employed there, reside in Port Sunlight. The Mersey Chemical Works are situated in the district and employ over 25 men. Land has been recently acquired for the establishment of other industries and two new works are in course of erection. There are rumours that a large number of houses for the industrial population employed in these various factories, are to be built in the near future.

"Eight persons were in receipt of out-door relief under the Poor Law, on 12th December, 1912; 3 of these were adults and 5 were children. Many of the cottagers take advantage of the gratuitous medical relief afforded by Liverpool Hospitals."

CHEADLE AND GATLEY URBAN DISTRICT.—"The district is mainly residential and agricultural; the subsoil is clay and gravel. There are two bleach and dyeworks, two steam laundries, and a small engineering works. The buildings connected with these works are well constructed and the health of the operatives good.

"There are three brick yards in Cheadle Hulme and one in Gatley. In Cheadle Hulme silk weaving by hand is carried on in several of the cottages. This industry is dying out rather rapidly now. There are three public institutions in the district, viz., the

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Manchester Royal Lunatic Asylum, the Barnes Convalescent Hospital (a branch of the Manchester Royal Infirmary), and the Warehousemen and Clerks' Schools. These are treated as separate localities in this report.

"The number of new houses built and occupied during the year was not so large as in 1911, but it was well above the average. In Cheadle it was mostly cottages that were built, and in Cheadle Hulme South Ward small villas."

COMPSTALL URBAN DISTRICT.—"The district lies on the south and south-easterly portion of the Werneth Hills, in the north-western portion of the County of Cheshire and is separated from the Ludworth Division of the Glossop Rural District, in the County of Derby, by the River Etherow.

"It is bounded on the north by the Borough of Hyde, on the west and south-west by the Romiley and Bredbury Urban District and on the east and south-east by the Glossop Rural District.

"It is chiefly rural in character, the urban portion being small in area and lying at the lower border of the district, on the south and south-easterly sides. The sub-soil is composed of clay, with intervening faults of sand, the whole resting on a rocky basis."

ELLESMERE PORT AND WHITBY URBAN DISTRICT.—"The Urban District of Ellesmere Port and Whitby lies on the southern shore of the Mersey, at the junction of the Manchester Ship and Ellesmere Canals. It is mainly an industrial town, built on the flat sandy shore of the Mersey and owing its existence to facilities for water carriage to manufacturing centres such as Wolverhampton, Birmingham, Manchester and the Midlands. Iron ore is brought from the north and forwarded to iron manufactories in Staffordshire. Large iron works for the making of galvanised iron constitute a staple industry of Ellesmere Port. These works employ over 3,000 men. Three large flour mills have been built, the owners having recognised the advantages offered by the position of your district for distributing their products. Still more recently an indigo dye works has been erected. A large Portland cement works has also been established and employs a number of men.

"One of the largest sources of employment is in the service of the Shropshire Union Railways and Canal Company. Agricultural pursuits are followed by the inhabitants of the portions of the

Wirral and Chester Rural Areas which were included in your district in 1910.

“29 persons (11 adults, 18 children) were on the list of Outdoor Poor in receipt of relief on 17th December, 1912, as contrasted with 26 (11 adults, 15 children) at the corresponding date in 1911.

“The Wirral Union, in which Ellesmere Port is included, had a population of 61,805 at the 1911 census. It is classified as a Semi-Urban Union, that is one in which between $\frac{1}{3}$ and $\frac{4}{5}$ of the population were living at the last census two or more to the acre. It had 10.51 paupers per 1,000 of population, against an average of 16.74 paupers per 1,000 in the twenty semi-urban Unions in which it is grouped by the Local Government Board Inspector in his return of pauperism for the year ending March, 1912.

“The Poor Law Infirmary at Clatterbridge and the Liverpool and Chester Hospitals have been utilised by the workers to a very large extent in the past, but the passing of the Insurance Act into law is bound to limit in a marked degree the use of all these institutions by the inhabitants of Ellesmere Port. Sheer destitution will be the only passport to the Union Infirmary, and accidents and urgent need for operation to the General Hospitals.”

HOLLINGWORTH URBAN DISTRICT.—“Hollingworth, situated in the eastern extremity of Cheshire, consists of a township lying at the foot of an extensive and very hilly country district, divided by the main road between Manchester and Sheffield. The neighbouring townships are Mottram, on the Manchester side, and Tintwistle on the Sheffield side. To the north the country district occupies the northern slope of the Longdendale Valley—to the south the River Etherow, at the foot of the valley divides the two counties of Cheshire and Derbyshire, and, looking towards the north of Derbyshire, the summit of the Peak of Derbyshire is visible. The mean altitude of the main street of Hollingworth is 500 feet above sea level, the country district on the northern side rising to a maximum of 1,300 feet.

“The subsoil in the immediate neighbourhood of the township is mostly clay, leading to sandstone rock. At an altitude above that of the main street the clay subsoil in most parts disappears, and the soil is found to be directly on rock. The result of this is that trees do not become rich in foliage and there is a marked absence of wild flowers and fruit. The prevailing east wind, which at times blows with great severity through the valley, is another factor which may also be partly responsible for this. The climate is very bracing.

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"The inhabitants are for the most part cotton operatives engaged in both spinning and weaving. There are three cotton mills and one large bleaching concern, within the rateable area and there is no other important industry calculated to affect the Public Health.

"The population of Hollingworth, according to the Census returns of 1911, was 2,581 and there has been little or no variation in this number since then. No new houses have been built since 1911 and there appears to be little demand for any further building to be taken in hand at present. New property finds a ready tenant, but only to the loss of the owner of the older."

HOOLE URBAN DISTRICT.—"The Hoole Urban District comprises an area of 334 acres and is almost entirely residential in character. The population consists for the most part of railway employeecs, nurserymen, clerks, artizans, shop-assistants, commercial travellers and many persons who, during the day are commercially or professionally engaged in Liverpool or Chester. There are no courts or slum areas; Hospital and other forms of gratuitous Medical relief are only utilized to a very limited extent. During the year out-door relief under the Poor Law was given to 13 males, 25 females (13 being widows) and 78 children."

HOYLAKE AND WEST KIRBY URBAN DISTRICT.—"The district is situated on the Estuary of the River Dee where it falls into the Irish Sea. A portion of West Kirby is built upon the slopes of Grange Hill, while the remainder, with Hoylake and Meols, lies along the flatter river bank and sea shore. Firm hard sand forms the soil and subsoil overlying clay in the level parts. New red sandstone constitutes Grange Hill.

"In the main it is residential, with houses belonging to persons of leisure, or occupied in business in Liverpool or Birkenhead.

"Hotel keeping and letting of furnished houses and apartments, as in other watering places, is the occupation of a number of the inhabitants. Building trades, the fishing industry, gardening, golfing, and shop keeping, give employment to others. There is no particular occupation which could be considered as having a detrimental influence on public health.

"On December 4th, 1912, 72 persons, 35 of whom were children, under 16 years of age, were in receipt of outdoor relief. These were distributed as follows:—

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		ADULTS.		CHILDREN.		TOTAL.
Hoylake	...	26	...	24	...	50
West Kirby	...	11	...	11	...	22
		<hr/>		<hr/>		<hr/>
Totals	...	37	...	35	...	72

"Contrasted with 1911, there are 9 fewer paupers, but in 1911 there was only one adult male on the list and in 1912 there are 4.

"The Wirral Union, to which the district belongs for Poor Law purposes, is a semi-urban one, that is one in which between one-third and four-fifths of the population were living at the last Census two or more to the acre. It has 10.5 paupers per 1,000 of the population, which is a low rate, as the average for twenty semi-urban unions is 16.7, an average which has fallen from 19.3 in 1911."

LYMM URBAN DISTRICT.—"The Urban District of Lymm forms part of the northern boundary of the County of Chester, and divides that County from Lancashire. It lies five miles eastwards from Warrington. The district consists of a central village with residential and agricultural surroundings. The central portion is surrounded by plain lands, low lying on the north, west and east, but keeping a higher level in a southern direction. The lowest part of the district is around the sewage farm in Statham, and the height is there 27 feet above sea level (high-water mark at Liverpool, ordnance datum); the highest point near Broom Edge is 190 feet above the same ordnance datum.

"The population is made up of a residential portion occupied at Manchester (13 miles away) and at Warrington; of shop-keepers, local artisans and operatives (fustian cutters), of artisans and operatives living in the district and working outside it (a few) and finally of an agricultural portion. Within the last nine years a new industry—salt manufacture—has been introduced, which at present occupies about a hundred males."

MARPLE URBAN DISTRICT.—"The area of the district is 3,053 acres urban and rural. The district of Marple, including portion of Strines and High Lane, is a hilly one, being built chiefly upon a slope with a west and north-west aspect.

"The height above sea level varies from 450 to 633 feet. It is well wooded and drained and although the sub-soil is clay with occasional faults of sand and gravel, yet owing to the natural

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drainage it is fairly dry and healthy. The locality is chiefly residential, containing only three mills and a few small works, the remainder of the village consisting of fairly large houses belonging to people with businesses elsewhere. The chief industry is cotton spinning and manufacturing.

“The cottages are mostly of a very good type with plenty of room and ventilation and most of the previous over-crowding has been done away with.”

MIDDLEWICH URBAN DISTRICT.—*Physical Features*.—“The district lies in the Valley of the River Dane and intersected by smaller rivers and canals.”

MOTTRAM URBAN DISTRICT.—“This district roughly extends from Roe Cross to Best Hill Bridge, N. and S. and from near the foot of Mottram Moor to the Brook on Hyde Road, E. and W., with the village of Mottram situated 600 feet above the sea level as its centre and from which the other portion of the district falls away. The sub-soil is chiefly composed of clay, with underlying rock.

“The chief occupations of the inhabitants are manufacturing cotton goods—bleaching, calico printing, and tape making.”

NANTWICH URBAN DISTRICT.—Nantwich (or Namptwyche, anciently called Wyche Malbank) occupies a pleasant position on the banks of the River Weaver, which intersects the town and over which there is a substantial stone bridge of one arch. The Aqueduct of the Grand Junction Canal, passes over Welsh Row, near the town. The Ellesmere Canal joins the Grand Junction Canal a short distance from the town. Nantwich is the market town for a large and important agricultural area and is the home of fox hunting.

“The brine baths are visited by a large number of persons who suffer from rhenmatism, gout, sciatica, neuritis, etc.

“The town may be roughly classified as being situated on the Keuper Marls, overlying the new red sand stone.”

NESTON AND PARKGATE URBAN DISTRICT.—“The Urban District of Neston and Parkgate lies in the south west portion of the Wirral Peninsula on the banks of the River Dee. It comprises three townships, Great Neston, Little Neston and Parkgate, situated at distances of about a mile from each other.

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“The geological formation underlying the entire area is new red sandstone. The coal measures are reached at Little Neston and a pit has been worked there for many years. Here and there pockets of clay overlies the sandstone, but the soil and subsoil are both usually of a sandy character.

“The occupations may be roughly classified according to the townships, as fishing at Parkgate, building trades and artisans in Great Neston and coal mining at Little Neston.

“Last year I had to inform you that the coal mining industry was at a very low ebb owing to difficulties connected with faults in the seams and at one time it appeared probable that there might be a complete cessation of activity at the pit. As this was the largest undertaking in the neighbourhood it was bound to affect the ratepayers very considerably in an adverse fashion. There has been a revival of the work consequent upon the introduction of modern machinery and the inauguration of a new epoch of well-being is anticipated.

“In all parts of the district many of the inhabitants are engaged in agricultural pursuits.

“A steam laundry has been established at Parkgate and employs a large number of hands.

“During recent years there has been an increasing tendency for the district to become a residential one and Liverpool business men now form a considerable section of the population.

“Thirty-four adults, 7 males, 27 females and 10 children were on the list of out-door poor in receipt of relief on 4th December, 1912, as contrasted with 31 adults and 11 children at the same date in 1911.

“The Wirral Union, in which your district is situated, is classified as a semi-urban one, *i.e.*, a Union in which between one-third and four-fifths of the population were living at the last census, two or more to the acre. In the year ended March, 1912, there were 10.5 paupers per 1,000 of population and this proportion was the second lowest in the 20 areas comprised in the semi-urban class, the average of which was 16.7 per 1,000, an average which has fallen from 19.3 in 1911 to 16.7 in 1912. Wirral is also well below the average when the proportion of outdoor total pauperism is examined.

“The hospital institutions of Liverpool, Birkenhead and Chester have in past years afforded the sick poor gratuitous

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medical relief, but under the conditions induced by recent legislation it appears as if this will be no longer available. Development of accommodation for sufferers may take place either in the direction of the establishment of a cottage hospital or of a more extensive use of the Poor Law Infirmary with an alteration of its title to municipal or district hospital."

NORTHWICH URBAN DISTRICT.—"The Urban District and Township of Northwich now includes what were formerly the Parishes of Witton-cum-Twambrooks, Northwich, and Castle-Northwich and parts of the parishes of Hartford, Leftwich and Winnington and its population estimated to the middle of 1912 is 18,400.

"The town proper is very low lying and is intersected by the River Weaver and its tributary the Dane. A considerable portion of the town is not more than 50ft. above sea level.

"The principal industries are chemical and salt manufactures, with some shipbuilding and iron foundries. As a market town it serves some proportion of the surrounding agricultural area.

"Subsidence, caused by the pumping of brine, is a source of great sanitary inconvenience, as it cracks floors and pavements, alters the fall of channels and sewers and causes them to sag."

SANDBACH URBAN DISTRICT.—"Sandbach is situated on a sandy soil chiefly, with a small proportion of clay. Its area is 2,693 acres and its population at the last Census was 5,723.

"The industries consist of engineering and chemical works, silk mills, fustian works and boot manufacturing. A large portion of it being agricultural.

"We are 26 miles from Manchester, and all urgent cases for operative treatment are sent there to such hospitals as the Royal Infirmary, St. Mary's, Children's Hospital and the Eye, Ear and Throat Hospitals. The poor in receipt of relief avail themselves of treatment at the large infirmary at Archid belonging to the Congleton Board of Guardians."

SOUTH-WEST CHESHIRE.—"The United District of South-West Cheshire consists of Tarporley Urban District, Chester Rural, Tarvin Rural and Malpas Rural Districts. This whole district is practically what is known as the Cheshire Vale. It is bounded on the north by the River Mersey and Manchester Ship Canal, on the

south by the Wych Brook, on the west by the River Dec and its tributary the Pulford Brook, on the east by a range of hills—Kelsall Rise, the Peckforton Hills, and Harthill; these hills are a continuation of the Overton, Helsby and Birch Hills, which lie to their north and almost touch the River Mersey. The River Gowy runs nearly north and south of the district from Beoston to the Mersey.

“The district is purely agricultural, with good farm home-steads as a rule and here and there are the county seats of the owners of the land and large residences of merchants from the neighbouring cities of Chester, Liverpool and Manchester. A great number of these are hunting people and provide a certain amount of labour for the working class and good markets for corn and hay for the farmer. The chief occupation is cattle-feeding, cheese-making and milk-selling to the great centres of Liverpool and Manchester and some of the milk is sent as far as London, a distance of 190 miles. The cheeses made in Cheshire have a world-wide repute and yearly some of the cheeses are sent to nearly every quarter of the globe.

“The district is well watered. The River Dee and the River Gowy, with their numerous brooks, which are never dry, add greatly to the quality of the pastures and the health of the cattle. The general conditions of the rural inhabitants is good, there is very little poverty, and as a whole they are well housed and clean. There is a scarcity of houses for the working classes in parts of the Tarvin and Malpas districts, but not in the other districts. The houses, with very few exceptions, are adequate and fit for habitation; there is a sufficiency of open spaces about the houses and the surroundings on the whole are satisfactory. Where there are deficiencies these are being pointed out and remedied.

“The country cottages are mostly detached, with good gardens and many are of the black-and-white type, with thatched roofs and small lead lights, with no damp-proof course. These we are trying to bring into a more sanitary condition without destroying their picturesque appearances.”

WILMSLOW URBAN DISTRICT.—“The Wilmslow Urban District is situated in the County of Chester, about 10 miles south of Manchester. The London and North Western Railway from Manchester to Crewe runs through it. It forms part of the Cheshire plain and is traversed by the valley of the River Bollin. Its area comprises 4,969 acres. The subsoil is chiefly sand and clay. On Lindow Common and in its neighbourhood there is

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peat. The district is partly suburban and partly rural in character. The population was 8,153 at the Census of 1911, as against 7,361 in 1901, being an increase of 792 or 10.7 per cent. Between 1891 and 1901, the increase was 14.4 per cent. A considerable part of the population is residential, chiefly composed of persons engaged in business in Manchester and Stockport, with their families. There are no large manufactories in the district. Some of the inhabitants work at a cotton mill at Styal and some at a bleach works at Handforth: places just outside the district. Many are employed in the ordinary local trades, whilst others are occupied with agriculture.

“As a rule there is not much unemployment. Persons in receipt of poor relief are mostly aged and past work. There is no hospital in the district. The inhabitants make use of the hospitals in Manchester and Stockport, to which the Council are subscribers.”

MACCLESFIELD RURAL DISTRICT.—“The Rural District of Macclesfield consists of 79,495 acres, and surrounds the Borough of Macclesfield and the Urban District of Bollington. It comprises 37 townships, which for registration purposes are grouped into the five sub-districts:—Alderley, Bollington, Gawsorth, Prestbury and Rainow.

“The district is divided naturally into a hilly eastern portion and a lowland western portion, this division corresponding with a geological “fault” which runs almost directly north and south through the district in a line indicated fairly accurately by the direction of the Great Central and the North Stafford Railways. East of this fracture, the physical features contrast very strongly with those on the western aspect. On the eastern side are lofty hills rising nearly 1,600 feet above sea level, and in many parts consisting of barren moorlands suitable only for grazing, while on the west the district is well-wooded and capable of being highly cultivated.

“The population estimated to the middle of 1912 is 16,744. The principal industries within the district are farming, quarrying, coal mining, and silk printing, while some of the male inhabitants find employment in adjoining districts as calico printers and cotton spinners. A few of the women are employed in felt hat trimming and blouse and shirt making. None of these occupations has been shown to produce any marked effect upon the healthiness of those employed.”

NANTWICH RURAL DISTRICT.—“The district is situated in the south-east of Cheshire and adjoins in the south the County of

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Salop and in the east the County of Stafford. It is part of the alluvial plain of Cheshire, its subsoil being largely the red marl. It surrounds the Borough of Crewe and the Urban District of Nantwich, both of which districts are situated near its centre. The diameter of the district is about sixteen miles. The occupation of the vast majority of the residents is that of dairy-farming. The greater part of the milk produced is manufactured into Cheshire cheese, but large quantities of milk are supplied to the neighbouring towns, to the large centres of population in Lancashire and to London. In that part of the district contiguous to the towns of Crewe and Nantwich there is a considerable population of a non-agricultural character, which population chiefly consists of railway employes and of tradespeople and their employes, whose daily occupation is chiefly found in the towns of Crewe and Nantwich. The wives and daughters of the poorer members of this class are to some extent employed in the clothing factories of Crewe, Nantwich, and Willaston and a considerable number are employed as out-workers in this class of business. Of the four sub-districts into which the district is divided the Crewe sub-district contains practically all the non-agricultural population, though even here the preponderating element is agricultural, whilst the sub-districts of Nantwich, Bunbury and Wrenbury are practically exclusively agricultural in character. Agriculture in this district is in a prosperous condition and the wages of agricultural labourers compare favourably with those of other parts of England.

“The district is drained by the River Weaver, which is a tributary of the Mersey and which receives tributary streams from the Counties of Salop and Stafford.

“The London and North Western, the Great Western and the North Staffordshire Railways run through the district, as also does the Shropshire Union Canal.

“The water-main of the Liverpool Corporation runs through the district, as also does the London and North Western Rly. Co.’s main, which supplies the Borough of Crewe. These mains are largely made use of for the supply of water to the Rural District.”

NORTHWICH RURAL DISTRICT.—“This Rural District, the principal industry of which is dairy farming, is intersected by the River Weaver and its tributary the Dane. It entirely surrounds the three Urban Districts of Northwich, Middlewich and Winsford. In the vicinity of these towns are chemical and salt works employing many hands and creating villages of a semi-urban character.”

BIRTHS.

TINTWISTLE RURAL DISTRICT.—"This district is divided into three portions—Tintwistle, Hattersley and Matley. Tintwistle portion extends from just below Saltersbrook to Millbrook Brow, Hollingworth, E. and W. and from the Manchester Reservoirs across the Moors to Carrbrook, N. and S.

"The Hattersley portion is surrounded by Mottram on the S.E., Borough of Hyde on the N.W. and Matley on the N.E.

"Matley adjoins the Stalybridge Borough on the N., Mottram and Hollingworth on the S. and S.E. and Hattersley on the W. The subsoil is chiefly composed of clay, with underlying rock. The chief occupations of the inhabitants are manufacturing cotton goods and bleaching."

WIRRAL RURAL DISTRICT.—"Wirral Rural District comprises the greater portion of the Peninsula of Wirral, lying between the Mersey and the Dee. The underlying geological formation throughout the entire district is new red sandstone and most of the soil and subsoil over-lying this is clayey or sandy loam. Generally speaking the inhabitants may be divided into two classes: (1) Those whose occupations are agricultural; (2) Those who are associated with business in Liverpool and other towns. The latter class has been steadily increasing during the last few years and some parts of the district have developed into residential centres, losing their rural character to a very large extent. Agriculturalists here, as a class, may be described as prosperous, when compared with the same class in other parts of England, proximity to the markets of Liverpool, Birkenhead and Chester, facilitating disposal of the produce. Many members of the farming community devote themselves almost entirely to feeding dairy cattle and forwarding milk to the towns above mentioned."

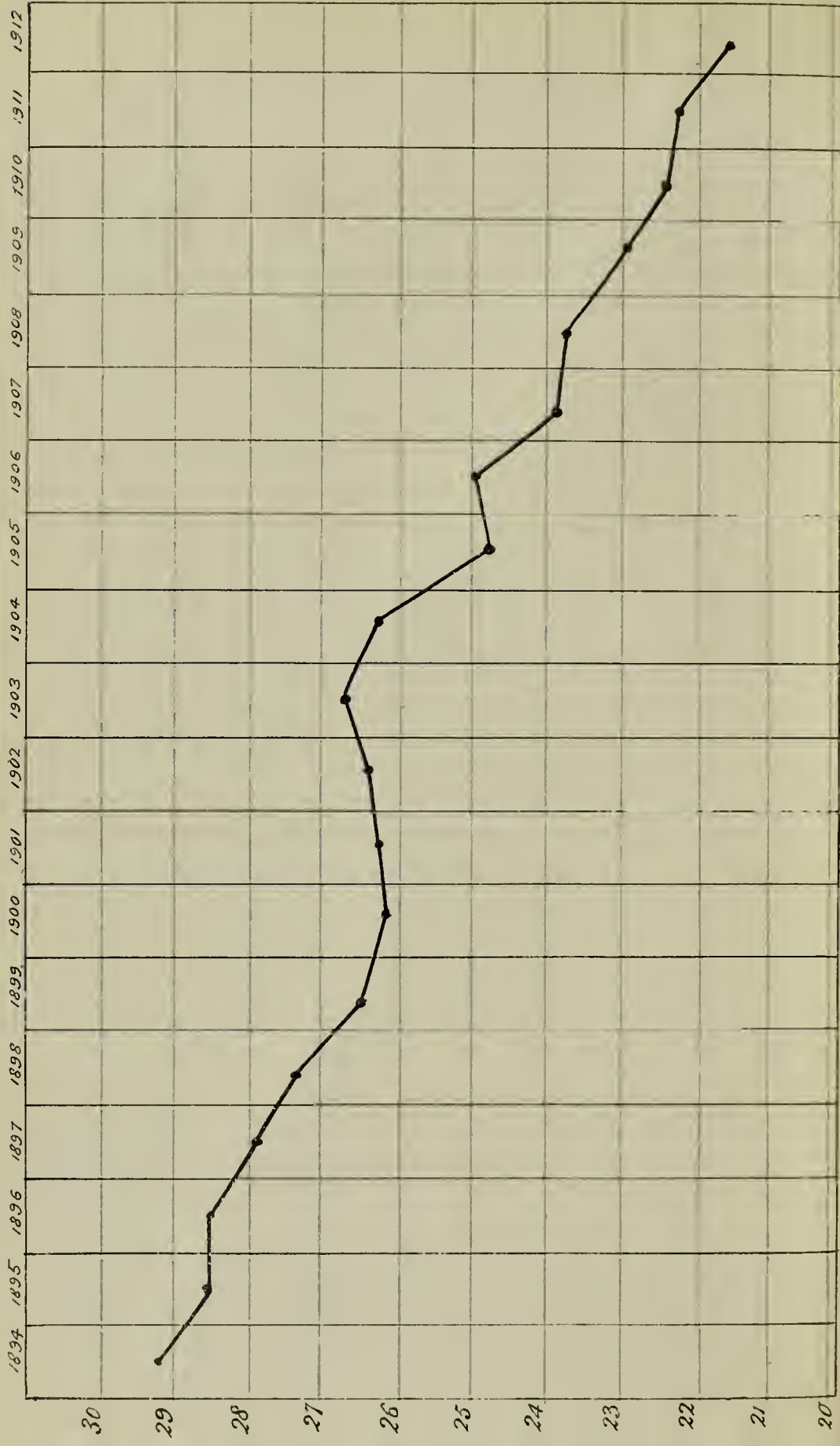
Section III.—Births and Deaths.

Births.

There were 14,808 births registered in the Administrative County during 1912, namely, 5,618 in the seven Municipal Boroughs, 5,460 in the 35 other Urban Districts and 3,730 in the 12 Rural Districts.

The birth-rate per thousand living in the Administrative County was therefore, 21.52 for the year 1911. In the whole of England and Wales this rate was 23.8 per thousand living, in the Rural Districts of England and Wales 22.6, in the 95 great towns

DIAGRAM SHEWING BIRTH RATE IN CHESHIRE SINCE DATE WHEN CORRECT RECORDS
WERE FIRST AVAILABLE.



24.9 and in the 149 smaller towns 23.8. In Cheshire the birth-rate varied from 22.22 in the seven Municipal Boroughs to 21.87 in the 35 other Urban Districts and 20.10 in the 12 Rural Districts. Ellesmere Port and Whitby Urban District showed an exceptionally high rate of 39.9 and the rate varied in other parts of the County from 30.5 in Higher Bebington Urban District, 26.9 in Runcorn Urban District, and 26.5 in Lower Bebington Urban District, down to 14.4 in Bowdon Urban District, 15.1 in Alderley Edge Urban District, 15.6 in Hoylake and West Kirby Urban District and 16.3 in Mottram Urban District.

The birth-rates were again lower in what may be termed the better-class residential districts than in the poorer-class districts and in the working parts of manufacturing towns. The following may be taken as examples:—

Better-class Districts.			Birth-rate.
Bowdon	...	...	15.1
Alderley Edge	...	...	15.1
Hoylake and West Kirby	...	...	15.6
Alsager	...	...	17.1
Wilmslow	...	...	17.5
Working-class Districts.			
Ellesmere Port and Whitby U.D.	...	...	39.9
Runcorn U.D.	...	...	26.9
Lower Bebington U.D.	...	...	26.5
Winsford U.D.	...	...	26.3
Northwich U.D.	..	...	25.9
Dukinfield M.B.	...	...	24.8

The almost continuous decline in the County birth-rate since the period when correct figures first became available is shewn on the accompanying diagram.

In England and Wales the decline is apparent from the following figures:—

			Birth-rate per 1000.
1881-1885	...	...	33.5
1886-1890	...	...	31.4
1891-1895	...	...	30.5
1896-1900	...	...	29.3
1901-1905	...	...	28.1
1906	...	...	27.1
1907	...	...	26.3
1908	...	...	26.5
1909	...	...	25.6
1910	...	...	24.8
1911	...	...	24.4
1912	...	...	23.8

BIRTHS.

Whilst one feels that discussion of a subject of this kind is not much more useful than coursing March hares there is just a faint hope that social and national feeling on the question has still some vitality left in it. Deliberate limitation of families probably owing to economic pressure is in my opinion the operative factor of greatest importance. Persisted in over a period of years this is bound to result in a lessened fecundity. I am not concerned with either the justification or condemnation of this factor, but merely once more draw attention to its undoubted existence and its probable result to the individual and the nation.

The subject is one worthy of investigation by a Royal Commission for it is a complex and many-sided question and one on which many irresponsible and fallacious utterances are made from time to time. And it is one fraught with the most serious consequences to the whole of the British Empire.

The Medical Officer of Health for Stalybridge writes as follows on this point :—

“The total number of births registered in the Borough during the year is only five more than during last year, when it was the smallest on record.

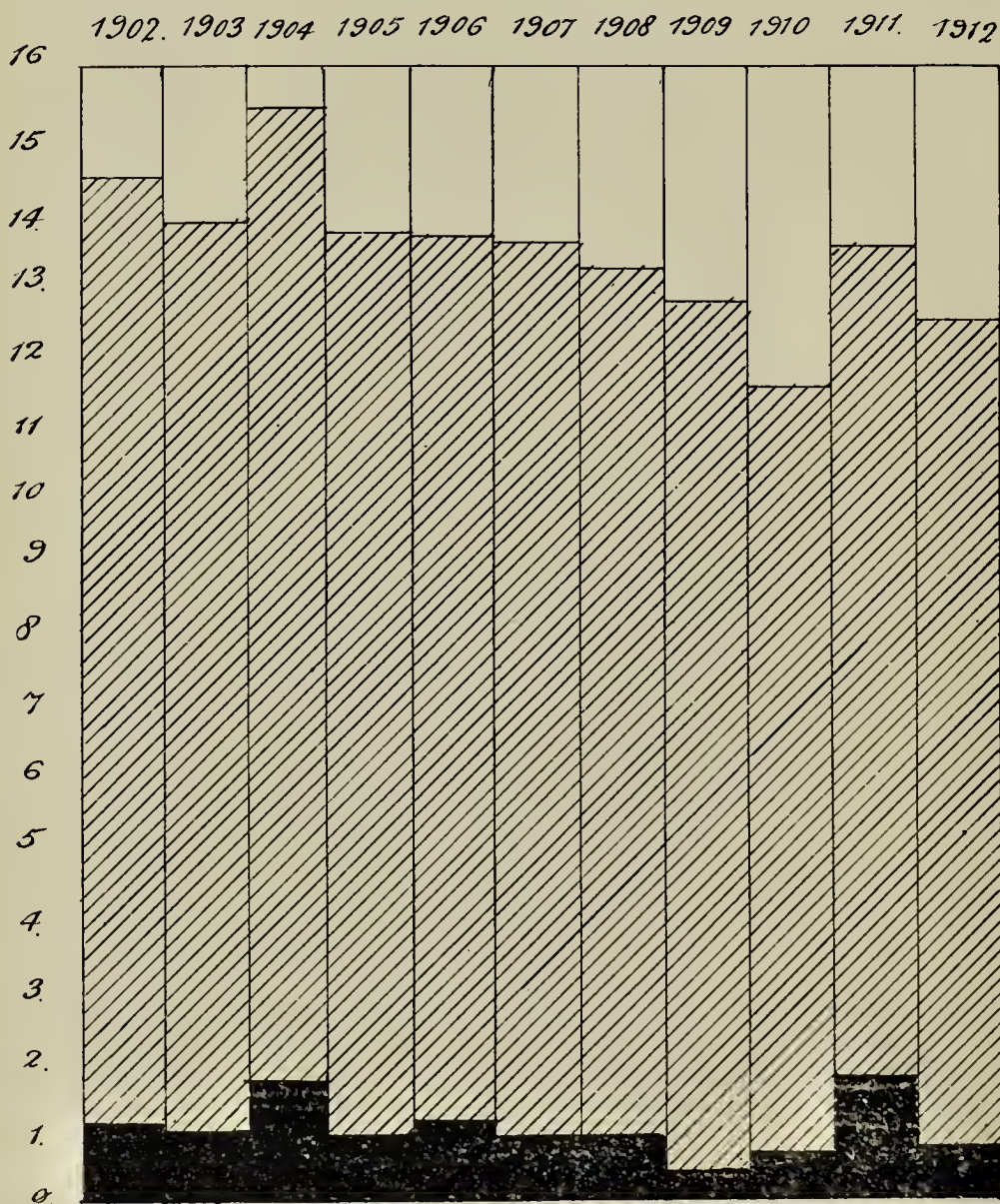
“This is a matter of serious concern for the Borough just as much as the low birth-rate throughout the country generally is for the nation.

“As I have said in previous reports, we might look upon this feature of the Borough’s continuance with less anxiety could we but assure ourselves that this decrease was associated with a corresponding advance in physical development, but I doubt if anyone can aver that such is the case. The falling off is too frequently noticeable in those grades of society where the infants might be well provided for and not in those where the struggle for existence is keen and constant and where the weaklings stand no chance and gradually succumb, adding largely to the toll of infant mortality. The number of miscarriages is a matter of regret to the medical profession, being far in excess of what it ought to be. These tell their tale not only upon the number of births, but also upon the vitality of succeeding conceptions.

“The fact that 28 infants were notified as still-born, that 16 deaths were attributed to congenital debility and malformation, including premature birth and that no less than 24 infants succumbed within a month of birth, is, I think, striking testimony to these truths, which need to be forcibly and repeatedly impressed upon the public conscience.

GENERAL DEATH RATE (ALL CAUSES & ZYMOTIC DEATH RATE IN CHESHIRE 1902-1912.

GENERAL DEATH RATE  ZYMOTIC DEATH RATE. 



"I am one of those who believe that the members of the large family, which has to fight its way and which struggles on with self-respect to rise in the world, attain greater self-reliance, have in them more 'grit' and enjoy better health and a brighter view of life than the members of the limited family who too frequently have their every wish gratified or forestalled and consequently seldom have their latent energies put to the test with the result that they are found wanting at the time when there is the greatest need for them."

Deaths.

The total number of deaths during 1912 in the Administrative County numbered 8,616, namely, 3,525 in the 7 Municipal Boroughs, 2,939 in the 35 other Urban Districts and 2,152 in the 12 Rural Districts. The death-rate for the County, as a whole, was 12.52 per thousand living. The comparative figures for the rest of the country were :—

England and Wales ...	—	13.3
95 Great Towns ...	...	14.6
146 Smaller Towns ...	...	13.0
Rural Districts ...	...	12.1

In the 7 Municipal Boroughs of Cheshire taken together the death-rate was 13.94, in the 35 other Urban Districts 11.77 and in the 12 Rural Districts 11.59.

The death-rates varied considerably in the different districts.

The highest rates are recorded in the following districts :—

Buglawton U.D. ...	..	18.0
Hollingworth U.D. ...	...	17.4
Dukinfield M.B. ...	...	16.4
Salybridge M.B. ...	...	16.4

The lowest rates are recorded in the following districts :—

Hale U.D. ...	...	6.9
Bromborough U.D. ...	...	8.0
Hoyle and West Kirby U.D. ...	...	8.6
Sale U.D. ...	...	9.2
Chester R.D. ...	...	9.4
Middlewich U.D. ...	...	9.4
Wirral R.D. ...	...	9.6

The lowness of the death-rate is a matter for congratulation. As compared with the year 1911 one finds that there has been during 1912 a considerably smaller number of deaths from zymotic diseases, there being a death-rate from this group of illnesses of

INFANTILE MORTALITY.

only 0.78 as compared with a rate of 1.80 in 1911. The infant mortality rate is also considerably less, being 89 for 1912 as compared with 121 for 1911. These two factors practically account for the whole of the reduction in the general death-rate for 1912, and they are both due to in largest part to somewhat exceptional climatic conditions.

DEATH-RATES PER 1,000 LIVING.

Year.	Cheshire.	England and Wales.
1912 ...	12.52	13.3
1911 ...	13.75	14.6
1910 ...	11.75	13.4
1909 ...	12.7	14.5
1908 ...	13.1	14.7
1907 ...	13.6	15.0
1906 ...	13.7	15.4
1905 ...	13.8	15.2
1904 ...	15.7	16.2
1903 ...	14.1	15.4
1902 ...	14.6	16.2
1901 ...	15.6	16.9

Infantile Mortality.

The Local Government Board in their Memorandum on the the preparation of Annual Reports by Medical Officers of Health, lay special stress on certain information which they desire should be given in the section relating to infantile mortality. Many Medical Officers of Health give virtually no information at all on this important subject beyond the bald figures, though there must be occasions on which valuable comments could be made. Inasmuch as most of the Medical Officers of Health in the County are also engaged in private practice their comments would possess additional weight. Certain paragraphs from this Memorandum are quoted as in previous years in the hope that they may attract the attention of those Medical Officers who probably may not have noticed them elsewhere and in the hope that this appeal for information may be a fruitful one. I have italicised some of those paragraphs as relating to matters which have not, in my opinion, received adequate comment in many of the Reports with which I have been furnished. It is not possible, in the absence of such information, for such a complete statement of this highly important question to be presented for the County as a whole as one would wish to give and one trusts that the little labour necessary will not be grudged in the future Reports of Medical Officers of Health.

“Table IV. issued by the Board affords opportunity for record in detail of facts as to infant mortality. It is well

known that in many parts of this country the infantile death-rate remains unduly high; that it differs widely in districts the circumstances of which are not definitely dissimilar; *and that within the limits of a given sanitary area this death-rate may exhibit striking diversities.* Not a few Medical Officers of Health in their annual reports—more particularly in reports of recent years—have dealt in detail with this subject, thus making important contributions to a better understanding of the conditions which conduce to infant mortality. *Nevertheless, statistics available in this connection do not afford, except in a broad and general way, satisfactory basis for comparison of district with district, nor, indeed, always for useful contrast of different sections of the same district.*

"In the text of his annual report, the Medical Officer of Health will, no doubt, comment on the facts that he has recorded in his table or tables, offering at the same time, observations on the conditions which, in his view, have mainly contributed to any special infant mortalities witnessed, and giving account of any measures adopted to ameliorate those conditions regarded by him as especially hostile to infant life. In so far as modification of procedure for the purpose, or of law in facilitating such modification, is in his opinion necessary, the Medical Officer of Health is invited to state his views."

"It is not proposed that report on the above lines be limited to districts exhibiting unduly high infantile death-rates. Data are desirable respecting districts low in the scale of infant mortality, with comment by the Medical Officer of Health on the facts that he is recording and indication of the conditions which, in his view, have principally conducted in his district to comparatively insignificant infantile death-rate."

Taking the Administrative County as a whole, the deaths of infants under one year of age numbered 1,326, equal to a rate per thousand registered births of 89. In England and Wales the comparative figure was 95, in the 95 great towns 101, in the 146 smaller towns 99 and in the Rural Districts 86. The figure for the Administrative County of Cheshire is thus a distinctly favourable one. In the seven Municipal Boroughs of Cheshire the rates recorded averaged 100, as compared with 84 in the 36 other Urban Districts, and 80 in the 12 Rural Districts.

In the following districts infantile mortality ruled high :—

Hollingworth U.D.	...	...	163
Dukinfield M.B.	...	..	145
Stalybridge M.B.	...	...	137
Nantwich U.D.	...	..	133
Yeardsley-cum-Whaley U.D.	...	...	125
Lymm U.D.	...	...	124

INFANTILE MORTALITY.

In the undermentioned districts the rates have been very low ones :—

Handforth U.D.	...	...	Nil.
Alsager U.D.	...	...	21
Bollington U.D.	...	...	31
Higher Bebington U.D.	...	...	38

Some of the above figures, relating to both high and low mortality rates are unquestionably accidental and are due to the smallness of the statistics concerned. A consideration of the statistics for the same districts over a period of 5 or 10 years would shew different results and it would be much more sound if Medical Officers of Health of small areas would in subsequent reports present important statistics in this form. In some of the districts of low infantile mortality there are probably factors concerned which, properly investigated and recorded, would throw useful light on some of the problems associated with this interesting question.

There is a continuance of the decrease in the recorded mortality from such vague and indefinite headings as debility, atrophy, marasmus and convulsions indicating a gratifying transference to more accurately diagnosed causes.

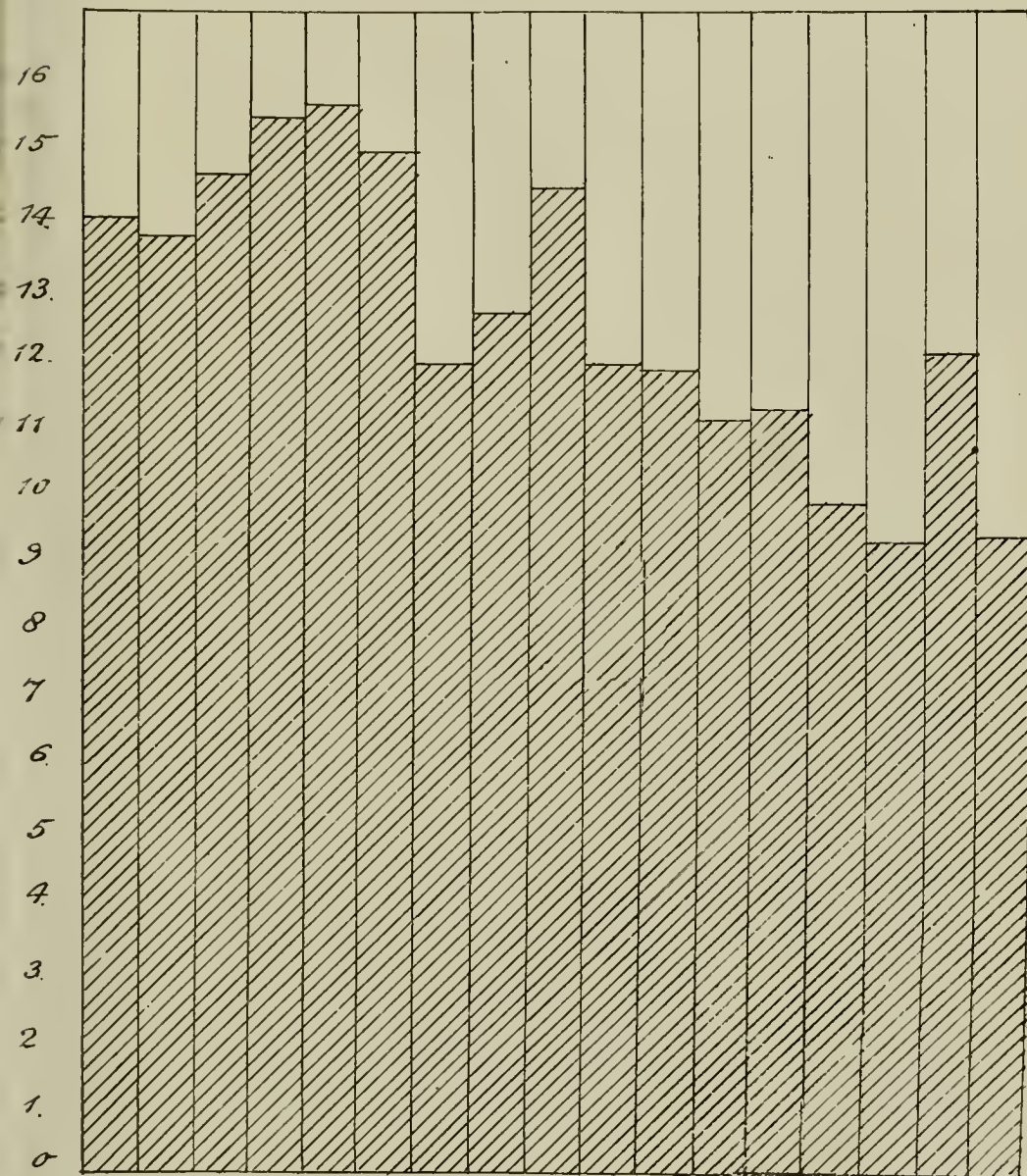
It is interesting to note the infant mortality figures over a period of years for some of those districts where it usually runs high. Take the Municipal Boroughs first and observe the infant death-rate for the past ten years.

Year.	Congleton.	Crewe.	Dukin- field.	Hyde.	Maccles- field.	Staly- bridge.
1902	129	131	184	186	102	176
1903	94	145	194	173	134	190
1904	190	160	198	198	178	210
1905	184	131	196	191	149	177
1906	112	118	176	153	123	206
1907	127	108	221	169	120	248
1908	129	103	214	169	137	219
1909	107	104	157	147	110	146
1910	118	103	163	141	103	166
1911	195	162	206	189	151	172
1912	106	82	145	112	115	137

INFANTILE MORTALITY IN CHESHIRE.

FROM 1876 TO PRESENT DATE.

1876 1881 1886 1891 1896
 TO TO TO TO TO
 1880 1885 1890 1895 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912



These figures speak volumes and enable the really "black-spots" so far as these Boroughs are concerned to be picked out at once: they are of course Dukinfield, Hyde and Stalybridge. The other three Boroughs are not in quite the same category though much might be done further to prevent such a serious loss of infant life. In the Borough of Stalybridge the Early Notification of Births Act has been adopted and a lady health visitor appointed. At Hyde this Act has also been adopted and a voluntary Ladies' Health Committee is at work giving advice and visiting mothers. The Act has also been adopted at Macclesfield and a Ladies' Health Association subsidised, it is believed by the Corporation, are at work assisted by a paid health visitor.

Consider now the same death-rate as it has been recorded in some of the working-class districts.

Year.	Altrin- cham.	Ellesmere Port.	Hoole.	North- wich.	Runcorn.	Sand- bach.	Winsford
1902	133	126	74	130	140	80	126
1903	139	135	112	149	156	106	119
1904	183	109	188	162	203	147	134
1905	116	126	94	115	120	111	115
1906	117	133	106	140	157	85	166
1907	115	112	98	121	119	87	104
1908	148	116	93	157	119	111	156
1909	96	140	69	101	156	79	115
1910	103	84	109	112	139	56	84
1911	173	153	49	180	90	166	147
1912	87	101	93	89	115	83	102

Here again we may single out the Urban Districts of Altrincham, Ellesmere Port and Whitby, Northwich, Runcorn and Winsford with possibly also Sandbach as areas where infantile mortality is unquestionably higher than it need be.

It is believed that out of all the districts concerning which figures are given the Urban District of Northwich is the only one in which the Early Notification of Births Act has been adopted and a lady health visitor appointed.

In smallish Urban Districts it is not easy to secure the appointment of a Health Visitor, but it is certainly open to the

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Councils to pay a small sum annually to the District Nursing Association and utilise her services in the visitation of mothers. Why this is not done it is difficult to conceive for the cost could surely not act as a deterrent. Such a system is successfully at work in Knutsford and Middlewich on the suggestion of Dr. Garstang, and in Nantwich on the advice, it is believed, of Dr. J. D. Munro.

The adoption of the Early Notification of Births Act is not entirely a matter for the decision of the District Councils, for the Local Government Board have to approve of the action of the local Council and in giving or withholding that approval the Board must be satisfied that some machinery exists or will be put into operation in the district for utilising the provisions of the Act for the control of infantile mortality. That is to say the Council must make some arrangement by means of the employment of health visitors or otherwise for domiciliary visitation and the tendering of personal advice to mothers in cases where such visits are deemed desirable.

It is open to the County Council to adopt the Act for the whole of the Administrative County, but, like all Local Authorities, they would have to shew that they possessed or would put into operation the requisite machinery for effectively carrying out the intention of the Act. In a few Counties the County Council has adopted the Act and made arrangements for carrying it out. If such a system were adopted it might well include the supervision of midwives, the two things being carried out direct from the office of the County Medical Officer of Health, or as an alternative the County Council might retain the services of the nurses of the County Nursing Association where these are available.

The Local Government Board have the power under Section 3 of the Act to declare the Act to be in force in the area of any Local Authority who have power to adopt it, notwithstanding such Local Authority has not adopted it, but in the provinces one has not so far heard of any such declaration having been made.

The Municipal Boroughs of Crewe, Congleton and Dukinfield should, in my opinion, take steps to adopt the Act without further delay. Amongst other districts where the infantile mortality rules more or less high and where the operation of the Act would, in my opinion, work advantageously, are the following—

Altrincham Urban District.	
Ellesmere Port and Whitby Urban District.	
Runcorn	„
Winsford	„
Sandbach	„

It might be found possible to adopt the Act also in the Northwich Rural District and to make arrangements with the Urban District for sharing the services of the health visitor recently appointed by the Urban District.

The following table shews the infantile mortality rate for the Administrative County and for England and Wales as far back as I can obtain reliable figures.

		Cheshire.		England and Wales.		Large Towns.
1894	...	131	...	137	..	152
1895	...	163	...	161	...	182
1896	...	135	...	148	...	167
1897	...	155	...	156	...	177
1898	...	160	...	161	...	178
1899	...	158	...	163	...	181
1900	...	143	...	154	...	172
1901	...	150	...	151	...	168
1902	...	119	...	133	...	145
1903	...	126	...	132	...	144
1904	...	144	...	146	...	160
1905	...	119	...	128	...	140
1906	...	118	...	133	...	145
1907	...	112	...	118	...	127
1908	...	113	...	121	...	128
1909	...	99.3	...	109	...	118
1910	...	93	...	106	...	115
1911	...	121	...	130	...	140
1912	...	89	...	95	...	101

Professor Corrado Gini, Professor of Statistics at the Royal University of Cagliari (Italy), after a most careful analysis of all the possible factors affecting this question gives it as his opinion that the lowering of the woman's age at marriage is the best practicable means of preventing that high mortality amongst civilised societies which occurs during the development of the young. This in his opinion "neither goes against selfish sentiments or hygienic necessities such as those which cause artificial feeding: nor against instincts which are difficult to control such as those which cause the short intervals between deliveries: nor against economic reasons as those which in modern society and especially amongst the higher classes, cause men to postpone marriage: nor against sentiments of pity, affection among relatives or instincts of independence such as those which make it difficult for the present to check the reproduction and maintenance of the unfit. It is also concordant with the girl's

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desires and the æsthetic sentiments of the men. It is to be hoped that the knowledge of the improvement in the vitality of the offspring to be derived from the early age of the bride may spread and not remain fruitless especially among some classes of society."

The remarks of certain Medical Officers of Health on this subject are appended.

CREWE MUNICIPAL BOROUGH.—"The Health Committee, in 1908, had under consideration the question of adopting the Births Notification Act. Owing, however, to the fact that no provision existed for visiting any cases which might be notified, it was decided not to adopt the Act for the present. The Committee agreed to the suggestion that a supply of cards of instruction on infant feeding should be given to each midwife in the Borough for distribution to her patients. In 1911 and 1912 the Health Committee again discussed the advisability of adopting this Act and I submitted schemes whereby the difficulty with regard to a lady health visitor might be overcome by a joint appointment. Negotiations in connection with this are still in progress and their successful completion is much to be desired. The administration of the Notification of Births Act would afford this Authority additional means of preventing unnecessary infantile mortality, and I strongly urge the appointment of a lady health visitor to carry out this Act."

DUKINFIELD MUNICIPAL BOROUGH.—"Since 1901, when the infantile mortality in Dukinfield reached its high-water mark of 275 there has been a considerable decline, but this year we are above the average for the previous 10 years. The average for the years 1897 to 1901 (inclusive) was 239. The matter has always been well thought out by your Committee. Special treatment in the way of feeding young children by means of sterilized modified milk has in past years been adopted in order to reduce the mortality. For each monthly meeting a special report is prepared as the result of enquiries relative to the deaths of infants under twelve months. It is difficult to explain the high infantile mortality in these manufacturing districts and as yet I know of no definite cause as the result of these statistics."

HYDE MUNICIPAL BOROUGH.—"The infant mortality rate is the lowest recorded in the Borough, and may be attributed mainly to the favourable climatic conditions, and the comparative freedom from epidemic diseases. The adoption of the Notification of Births Act and the consequent increase of efficiency of the work of the Ladies' Health Committee, I have no doubt played a considerable part in its reduction."

STALYBRIDGE MUNICIPAL BOROUGH.—“There has been a distinct improvement in the infantile mortality during the past four years and the present year's record is exceptionally good. The improvement in the mortality of infants is probably in part due to steadily improving sanitary conditions but may largely be attributed to the efforts of Miss Hanson, our Lady Sanitary Inspector.

“Miss Hanson commenced her duties in February, 1908, and the Notification of Births Act, 1907, came into force in our Borough on March 1st, 1908. The Act has met with a very ready response, both from the general public and from the midwives, and there have occurred very few births indeed which were not notified to me in accordance with its provisions. Information regarding these omissions was kindly given me by Mr. Flint, the Registrar of Births and Deaths and upon enquiry I usually found the reason was ignorance of the Act and not neglect of it, upon the part of the parents.

“Very shortly after a birth has been notified Miss Hanson visits the home, gives advice *re* the feeding and management of the infant, notes any defects or insanitary conditions in or about the premises and reports thereon. Visits are again paid to these homes when the infants attain the age of three, six and nine months and reports are again made, while additional visits are paid whenever it is thought advisable.

“During the year she has paid 2,705 visits *re* births and 1,235 occasional visits. Besides visiting the newly-born infants she also investigates all cases of deaths of infants under one year of age and in this connection she has inquired into the deaths of 77 infants. Of these she ascertained that 11 had never partaken of any food, 20 had been entirely breast-fed and 46 had been artificially fed.

“Her observations lead her to believe that breast-feeding is being more systematically and more persistently followed out than was the case during the earlier portion of her round of visits and that in case of serious disease, medical advice is more promptly obtained.”

WALLASEY MUNICIPAL BOROUGH.—“During the year 1912 the deaths of 137 children were recorded who had not at the time of their death reached the age of 1 year. This gives an infantile mortality rate of 76 per 1,000 births, the lowest on record for Wallasey.

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“Let us examine the table relating to infant mortality and compare it with similar tables of the last three years.

	1909.	1910.	1911.	1912.
1—Common Infectious Diseases caused	4 deaths	11 deaths	4 deaths	9 deaths
2—Diarrhoeal Diseases caused	... 14	„ 38	„ 59	„ 3
3—Wasting Diseases (including Pre-mature Birth, Atrophy and Marasmus) caused	... 56	„ 32	„ 67	„ 62
4—Tuberculous Diseases caused	... 13	„ 9	„ 6	„ 7
5—And other causes, including Respiratory Diseases, Convulsions and Overlying, caused	... 61	„ 59	„ 54	„ 56
Including Bronchitis and Pneumonia			(20)	„

“The fall in the infant mortality rate is obviously due to the lessened mortality from diarrhoeal diseases. Such a low mortality from this class of disease has never before been reached. Not a single death from summer diarrhoea occurred within the Borough; the one death ascribed to that disease having occurred in Tranmere Workhouse and referred to an infant found by the police in a street on August Bank Holiday. The other two were deaths from enteritis in the early part of the year.

“Having regard to previous experience, it is a very remarkable fact to record that not one death from summer diarrhoea occurred among a population of 81,000 people. No doubt the wet and cold summer was a factor of very considerable importance—very probably the deciding factor in bringing about this happy result—but, as I have remarked on former occasions, the last was not by any means the only wet and cold summer on record, nor yet the coldest and wettest. Never before, however, has there been such a low mortality. Some other forces must have been at work, which were not formerly at work. It cannot be denied now what these forces are and Local Authorities and voluntary associations, which have worked in this field hand in hand with Local Authorities, may take great credit to themselves for the efforts which have been so successfully undertaken to minimise this enormous blot on our civilisation, namely, the wastage of infant lives.

“In 1912, there were 66 illegitimate births and 14 deaths of illegitimate children below the age of 1, giving a mortality rate per thousand illegitimate children born of 212, which is nearly four times the infant mortality rate for the whole population. This speaks for itself. An illegitimate child, as is proved by German experience, has as good a chance of surviving the first year

of life, under proper conditions, as a child born in wedlock. The conditions under which illegitimate children are tended in England are not satisfactory and, in my opinion, reform is necessary in this direction.

“Inquiries instituted in 1908 as to the causes and circumstances attending the deaths of children under 1 year have been continued in 1912. 1,134 births were visited. At the time of the first visit 87 per cent. were fed entirely on the breast; 7 per cent. were bottle-fed, 5 per cent. on breast and bottle. Of the deaths of children under 1 year (137 in number), 10 were breast-fed, 56 were bottle-fed, 16 were fed on breast and bottle, 22 were not fed at all and particulars were not ascertained with regard to 33 of the deaths. It will thus be seen that over twelve times more children are breast-fed than are bottle-fed on the occasion of the first visit: the number of deaths of bottle fed children is, however, over five times as great as those entirely breast-fed. These figures are most striking. If it is necessary to offer any inducement to mothers anxious for the welfare of their children to feed them from the breast where possible, these figures ought to supply that inducement.

“It should be noted that nearly half of the total deaths of children under 1, namely, 62, come under the heads of premature births, which numbered 29, malformations 9 and atrophy, debility and marasmus, 24. Of these latter, 5 occurred under the age of 1 month—3 of them in the first week—probably due to pre-natal causes. The majority of deaths under this latter heading are of children weakly from birth and of whom many would die even with the greatest possible care.”

LOWER BEBINGTON URBAN DISTRICT.—“23 infants died before attaining the age of 1 year, which equals an infantile mortality of 73.4 per 1,000 infants born. The adoption and proper working of the Notification of Births Act will do much to lessen the number of deaths of infants.”

BOLLINGTON URBAN DISTRICT.—“The past summer it will be remembered was noted for its being a very wet one, whilst the long periods of drought of 1911 will not readily be forgotten. In dry, hot weather, vegetable and animal waste material putrify rapidly, giving off noxious gasses, flies multiply enormously and convey disease-bearing germs to healthy food. Of all kinds of food, that used for infant feeding—milk—becomes infected most quickly of any. The infant has the least power of resistance and consequently it is the first to be laid low and the soonest to die.

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On the other hand in dull wet weather, the gulleys and channels of the streets are washed more freely, waste refuse on the roads is swept away, putrefaction is thus prevented in the streets and delayed in such storage places as privy-middens.

“The average infantile death-rate for the past 5 years, viz. : 87.6 reminds us, however, that the low death-rate this year must be regarded to a large extent as accidental and that it is quite as essential as ever to keep a careful watch on everything affecting the rearing and up-bring of the infants.

“The lines the Council have heretofore worked on to this end are :—

1. Care of the expectant and newly confined mother. The mill authorities were approached some years ago with a view to the prevention of such women continuing at their work right up to the time of their confinement and their commencing again at too short a period afterwards. There is no doubt that great help has been obtained from those in charge of the mills in this matter. Frequently women have been sent to your Medical Officer by the different managers for his advice on the question of the length of time they should be allowed to continue at work. This support from the employers is worthy of notice.
2. The help of the District Nursing Committee was obtained. This Committee was asked to do any visiting that might be put in their way by any of the medical men who were in attendance on confinement cases and to give what help they were able by advice and by seeing that any actual necessities were provided. Milk has in this way been frequently supplied by the Committee to needy cases. Boat-shaped feeding bottles were freely given by one of its members. Printed cards, with instructions as to the care, feeding and clothing of the baby, are distributed through the medium of the midwives.
3. The abolishing of the privy-middens where possible and where this has not yet been achieved, their more frequent emptying and cleansing.

“In these different ways the attempt is made to preserve infant life. No slackening of effort must be thought of in this most important matter.”

BREDBURY AND ROMILEY URBAN DISTRICT.—“This subject continues to receive attention and books of instructions on infant feeding, &c., are distributed free to those having the care of young children. A supply has been provided for the Registrar of Births, who has kindly distributed them to parents who go to register births. In this way they reach the mothers at an early period and I believe have been found useful. There have been 15 deaths of children under 1 year of age during the year, eight of which were due to congenital malformations, premature birth, or congenital debility. The infant mortality rate is equal to 84 per 1,000 registered births. This compares favourably with the neighbouring towns and other parts of the country.”

CHEADLE AND GATLEY URBAN DISTRICT.—“In April, 1907, a circular was issued by the County Medical Officer of Health, in which circular recommendations were formulated so as to prevent excessive infant mortality. A copy of these suggestions was printed in my Annual Report for the year 1907 and its recommendations are being carried out by either your Council or the various district nurses and district visitors with, I think, very satisfactory results, as the infant mortality is very low from preventable diseases.”

“*The Early Notification of Births Act, 1907* has not been adopted. When your Council considered the question of adopting the Act it was decided not to do so, as most of the cases are attended by medical men and in the few cases which are not and where it has been found necessary to give advice, the various district nurses have taken the matter in hand or reported the case. So far this arrangement has worked very well.”

ELLESMERE PORT AND WHITBY URBAN DISTRICT.—“From 1907 onwards each year except 1910 evidences a large infantile mortality rate. Where there is an excessive child mortality there is also found to be an excessive amount of bad health in the subsequent years of life and diminution in the former is associated with lessening in the latter. Proper nourishment, sunlight and plenty of fresh air are all required if this blot on the district is to be removed, but it is also of vital importance that the young mothers who are deficient in knowledge of how to rear their offspring should receive instruction.

“The adoption of the Notification of Births Act would enable you to appoint a health visitor to visit and give advice to the parents of recently born children. The Medical Officer of Health for the County has quoted your district as one in which in his opinion the adoption of the Act would operate advantageously and discussion has taken place in the County Council as to the

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enforcement of its powers to compel the adoption. Six months ago when you considered the subject you came to the conclusion that the motion for its adoption should be deferred and the matter will be before you again at an early meeting.

“The nurses who visit the cottages do work of an admirable character, but they are not vested with the powers of a health visitor and although they can and do instruct the mothers, in many cases their efforts are unavailing. In my opinion neither poverty nor insanitation are the causes of the unduly high infantile mortality rate, but its origin is to be sought in ignorance and lack of knowledge of young infants amongst the mothers. The question for the decision of the Council is whether or not it will adopt the Act and provide a health visitor to give these infants and mothers a chance.”

HOOLE URBAN DISTRICT.—“The Notification of Births Act, 1907, has not been adopted in this district. Great vigilance was exercised by the Sanitary Inspector and the men working under him during the summer weather in the removal of house, stable and other refuse and on July 24th and 25th leaflets dealing with the house fly as a carrier of disease were distributed throughout the district. There were hardly any cases of zymotic diarrhoea and no death was certified as due to it.”

KNUTSFORD URBAN DISTRICT.—“The district nurse continues to work under the Notification of Births Act. In 1912 she had on the average 55 babies on her list and she paid 908 visits. She notified to me four still births and three deaths. The infantile deaths are a fairly constant number, though the decrease in the births tends to raise the ‘mortality figure.’”

MIDDLEWICH URBAN DISTRICT.—“The Notification of Births Act has been in force for three years. The lady health visitor has paid numerous visits and instructed the mothers in the care of feeding of their infants.”

NANTWICH RURAL DISTRICT.—“The Notification of Births Act is not in force in the district, nor can I recommend its adoption unless the Council will grant me the services of a female health visitor. By this means only could I make use of the early information to be obtained under the Act. Such a visitor is already employed as a part-time officer by the Board of Guardians for the visitation of boarded-out children and does excellent work. I strongly suggest that her whole time be secured by the Council and that the Notification of Births Act be adopted. I could employ her time very profitably in visiting new-born infants and the notified cases of tuberculosis.

“A booklet on infant management, prepared by me some years ago, is distributed by the registered midwives of the district, but personal advice would impress mothers far more than any amount of literature.”

NANTWICH URBAN DISTRICT.—“The Babies’ Day Nursery is open daily (Sundays excepted) from 7-30 a.m. to 6-30 p.m.; Saturdays 7-30 a.m. to 1 p.m. This nursery continues to perform very good work, and is much appreciated by many mothers who are employed in the factories during the day. Thirty-two babies were nursed there during the year and the attendances numbered 4,035.

“There is a large garden attached to the nursery and during the summer the babies are nursed out of doors—they are popularly known as ‘open-air’ babies. It is also to be noticed that during the winter large fires are kept burning in the nursery, upstairs and down, the windows and doors are open, thus providing efficient ventilation and fresh air, which is so essential to healthy child life. A trained nurse is in attendance daily.

“Our sincere thanks are due to Lady Cotton-Jodrell for her generosity in defraying the large expenses connected with this nursery, and the consistent interest which she takes in this most useful institution. The district nurse visits the infants born amongst the working classes and gives instructions in feeding and rearing on hygienic lines. During the past year the Nantwich district nurse attended 81 cases and paid 2,571 visits.”

WILMSLOW URBAN DISTRICT.—“The Notification of Births Act has not been adopted as the district midwife attends most of the working women in their confinements and is well qualified to give them advice on the care of their infants. Printed cards of instructions to mothers are distributed.”

Illegitimate Infants.

In very few Reports is there any allusion to this matter.

The Report for the Borough of Crewe shews for a number of years the death-rate amongst illegitimate children and with three exceptions (1900, 1909 and 1912) this is higher than that of children born in wedlock—see Table below.

Table shewing death-rate per thousand births of each class among legitimate and illegitimate children in the Borough of Crewe :—

ILLEGITIMATE INFANTS.

	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912
Infantile Mortality of legitimate children ...	162	138	180	130	147	159	131	118	108	101	106	102	162	82
Infantile Mortality of illegitimate children ...	228	125	200	156	166	162	256	224	142	166	68	116	209	80

Dr. Barlow, reporting on this question in the Borough of Wallasey, writes:—

“16 of the deaths were those of illegitimate children, 14 of them being under 1 year of age; of these, five died in the Workhouse. The ages and causes of the illegitimate deaths under 1 year of age were as follows:—

Less than 1 hour (1 case)	...	Suffocation.
1 month (3 cases)	...	Marasmus.
1 month (1 case)	...	Pneumonia.
1 month (1 case)	...	Premature Birth.
1 month (1 case)	...	Incorrect Feeding.
3 months (1 case)	...	Broncho-pneumonia.
8 months (1 case)	...	Syphilis.
10 months (1 case)	...	Broncho-pneumonia.

“As in former years several deaths, which were really those of illegitimate children, have been registered in the father’s name, thus reducing the rate of illegitimate deaths.”

That the chances of life of the illegitimate child are but small compared with the child born in wedlock may be gathered from the following figures given by the Registrar-General (Seventy-second Report). The figures shew the deaths amongst legitimate and illegitimate infants at various age-periods in England and Wales during 1909, this being the most recent period for which such figures are available:—

Age.	All Infants.	Legitimate.	Illegitimate.
Under 1 year ...	108.73	104.35	211.18
Under 3 months ...	60.12	57.61	119.37
3—6 months ...	19.20	18.17	43.00
6—12 months ...	29.41	28.57	48.81

STILL-BORN CHILDREN—ZYMOTIC DISEASES.

At all the age-periods named illegitimate infants have only about one-half the chance of life of those born in wedlock and the number of deaths at very early ages is most striking.

Still-born Children.

There is only one reference to this important matter in the reports received, namely, in the Borough of Crewe, in which it is stated that during 1912 there were 58 still-born children interred in the Borough Cemetery, a number equivalent to 5.68 per cent. of the total births.

The registration of every still-birth under a certificate signed by a medical practitioner should be made compulsory, for there is little question that many so-called still-births are not such at all.

It is not sufficiently known that *the adoption of the Notification of Births Act ensures the notification of all cases of still-birth*—an additional argument for the putting in force of this most useful measure.

Deaths from Zymotic Disease.

Under this heading are included deaths from certain zymotic diseases specially scheduled by the Registrar-General, namely :—small-pox, scarlet fever, measles, diphtheria (including membranous croup), whooping-cough, fever (typhus, typhoid, continued and ill defined fevers of uncertain origin) and diarrhœal diseases of zymotic origin. The death-rate in the Administrative County from this group of diseases during 1912 was 0.78 per thousand of the estimated population. In the 7 Municipal Boroughs it was 1.02, in the 35 other Urban Districts 0.82 and in the Rural Districts 0.46 per thousand of the estimated populations.

Under this heading there were 545 deaths in the County, a number less than half that recorded during the previous year.

The rates appear to have been unusually high in the following areas :—

Winsford U.D.	...	...	3.9
Compstall U.D.	...	...	3.28
Dukinfield M.B.	...	...	1.95
Hollingworth U.D.	...	...	1.93

ZYMOTIC DISEASES.

Death from measles (162), diarrhoeal diseases (134), whooping cough (109), and diphtheria (74) were the chief causes of the zymotic mortality. Scarlet fever and "fever" caused but a small mortality during 1912.

The deaths in the Administrative County from the various components of this general cause of death have been as under:—

Small-pox	...	...	nil
Measles ...	...	...	162
Scarlet fever	...	...	37
Diphtheria	...	...	74
Whooping-cough	...	...	109
"Fever"	...	...	29
"Diarrhoea"	..	...	134
Total deaths			<hr/> 545 <hr/>

The death-rates in Cheshire (Administrative County) and England and Wales from this class of disease for the past ten years have been as under:—

Year.		Cheshire.		England and Wales.
1912	...	0.78	...	Figures not yet available.
1911	...	1.80	...	1.88
1910	...	0.77	...	1.23
1909	...	0.66	...	1.12
1908	...	1.13	...	1.29
1907	...	1.14	...	1.26
1906	...	1.27	...	1.73
1905	...	1.10	...	1.52
1904	...	1.84	...	1.94
1903	...	1.15	...	1.46
1902	...	1.19	...	1.64

The rate for 1912 thus stands out as the lowest rate but two on record during this period. Subject as this rate is to somewhat extreme fluctuations, chiefly due to the prevalence and fatality of diseases which are apt to occur in epidemic outbursts, too much must not be made of the statistics of a single year. A comparison with the records of previous years as to deaths from the various zymotic diseases is useful and interesting.

ZYMOTIC DISEASES—SCARLET FEVER.

Presented as rates per thousand persons living these may be arranged as follows, comparative figures being given for the ten preceding years:—

Year.	1912.	1911.	1910.	1909.	1908.	1907.	1906.	1905.	1904.	1903.	1902.	England & Wales. 1912.
Smallpox ...	0.00	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.03	0.02	0.003	0.00
Measles ...	0.23	0.22	0.13	0.18	0.21	0.35	0.13	0.23	0.48	0.10	0.33	0.35
Scarlet Fever ...	0.05	0.04	0.07	0.12	0.12	0.10	0.11	0.09	0.10	0.15	0.11	0.05
Diphtheria and Membranous Croup ...	0.10	0.12	0.16	0.11	0.15	0.14	0.15	0.17	0.15	0.18	0.24	0.11
Whooping Cough	0.15	0.20	0.18	0.06	0.23	0.25	0.14	0.16	0.35	0.32	0.19	0.23
Fever ...	0.04	0.05	0.07	0.06	0.08	0.06	0.09	0.10	0.11	0.06	0.11	0.04
Diarrhoea ...	0.20	1.14	0.13	0.22	0.34	0.19	0.65	0.35	0.62	0.32	0.21	8.35
Total rate ...		0.78	0.77	0.66	1.13	1.14	1.27	1.10	1.84	1.15	1.19	

With the exception of the diarrhoeal death-rate the figures for 1911 and 1912 are seen to present but little difference.

Scarlet Fever.

There were 37 deaths due to this disease during 1912, namely, 21 in the Municipal Boroughs, 8 in the 35 other Urban Districts and 8 in the 12 Rural Districts. The death-rate from this disease in the Administrative County was 0.05 per thousand persons living.

Last year there were 29 deaths from this disease in the Administrative County, the death-rate being 0.04 per thousand of the estimated population.

During the past 40 years the fall in the mortality from scarlet fever has been remarkable, not only in this County but throughout the whole country. The type of disease prevalent of recent years is totally different from what it was say 20 years ago. The disease still remains exceedingly fatal to children under the age of 10 years and particularly to children in the first five years of life. The decline in scarlet fever mortality as a whole is now regarded as being

DIPHTHERIA AND MEMBRANOUS CROUP—WHOOPIING-COUGH.

due to a milder form of infection rather than a diminished occurrence of the disease. The returns of the Metropolitan Asylums Board from 1872 onwards show that the number of deaths occurring in the huge number of scarlet fever cases treated annually in these hospitals is steadily declining.

Diphtheria and Membranous Croup.

These diseases are now universally classed together as diphtheria. Very few cases now occur, however, where the term "membranous croup" is used. The number of deaths due to these causes during 1912 in the Administrative County was 74, a number equal to a death-rate of 0.10 per thousand persons living. This is a decrease of 14 deaths as compared with the record of 1911.

The deaths numbered 30 in the seven Municipal Boroughs, 31 in the 35 other Urban Districts and 13 in the 12 Rural Districts. The largest number of deaths occurred in Winsford Urban District, which suffered from a sharp outbreak of the disease.

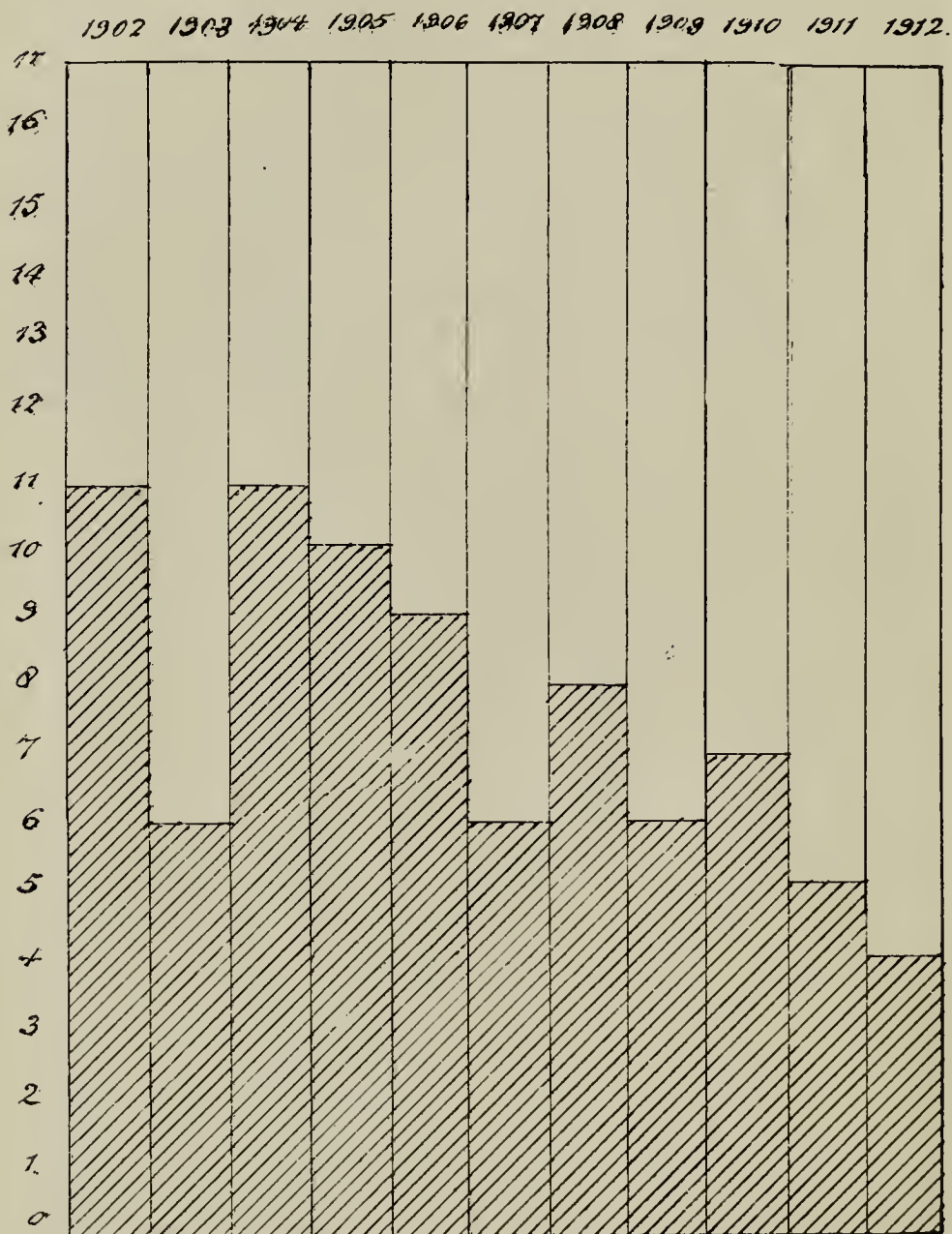
Diphtheria still continues much more destructive in the town than in the country, although it was in early years considered to be mostly a disease of country districts. This fact is particularly noticeable in children under 5 years of age, who die of it practically at twice as great a rate in urban areas as they do in rural. In England and Wales the mortality from this disease in children under 5 years of age has practically been halved since 1901, but this diminution does not hold in children slightly older, *i.e.*, in the 5—10 year period of life who are living in rural areas, though it does hold for such children residing in Urban areas. This decline in the mortality is almost without doubt due to the use of antitoxin. There is no question that a certain proportion of the deaths ascribed to such conditions as "quinsy," "ulcerated sore throat," "tonsillitis," &c., are really of diphtheritic nature and as bacteriological examination continues to be more utilised for purposes of diagnosis, it is probable that a greater proportion of these deaths will eventually be recorded under the heading of diphtheria. That this is actually taking place to some extent at the present day is evident from the fact that the mortality from "tonsillitis," "ulcerated sore throat," "quinsy," &c., is becoming smaller every year.

Whooping-cough.

There were 109 deaths ascribed to this cause, a number equal to a death-rate of 0.15 per thousand persons living. The deaths occurred as under :—

DEATH RATE FROM "FEVER" IN CHESHIRE.

1902-1912.



WHOOPING-COUGH—MEASLES—FEVER.

7 Municipal Boroughs	...	...	59 deaths.
35 Other Urban Districts	...	...	28 „
12 Rural Districts	...	...	22 „

This is a slight decrease on the previous year and it is also the highest death-rate from any of the zymotic diseases except measles and diarrhoeal diseases.

There were 16 deaths in Crewe, 15 in Wallasey, 13 in Stalybridge and 11 in the small district of Ellesmere Port.

The fatal effects of whooping-cough are still almost confined to children under the age of 5 years. Whereas measles, scarlet fever and diphtheria are more fatal in the second and fourth years of life, whooping-cough is more fatal in the first year of life than in any subsequent year of the first five. Whooping-cough mortality is curiously enough usually greater amongst girls than amongst boys. In Urban areas children die from whooping-cough at a greater rate than in Rural areas, in some instances the mortality being from five to seven times as great in crowded Urban districts as in the less populous Rural districts, probably owing to the greater prevalence of overcrowding and the consequently greater incidence of broncho-pneumonia.

Measles.

This disease was only seriously prevalent in a few sanitary areas during 1912 but nevertheless caused 162 deaths.

Public apathy to this disease is still the greatest obstacle for health officials to overcome and until the disease becomes as much dreaded by the public as smallpox it is feared that but little in the way of preventing these sacrifices of children can be done.

Fever.

This term which is now practically obsolete and which does not appear in any of the Local Government Board Tables for this year embraces typhus, typhoid or enteric and other continued fevers. Seeing that typhus fever is extinct except for very rare and isolated cases and that continued fever is synonymous with enteric or typhoid fever, this group of diseases may be looked upon as representative of typhoid fever only. The deaths due to "fever" in the Administrative County during 1912 numbered 29, equal to a rate per thousand persons living of 0.04. The death-rate from this disease or group of diseases has not been a high one in the County for a long time and it has been steadily diminishing for many years.

FEVER—DIARRHOEAL DISEASES.

According to the Reports of the Registrar-General the mortality from typhoid fever has dropped considerably during the course of the last 30 years. The drop was very marked during the first 20 years of that period, but during the past 10 years it has not been so great. This diminution in mortality is due rather to lessened prevalence than to a diminution in the fatality rate amongst those attacked. Another fact emphasised by the Registrar-General is that enteric fever is enormously more fatal in the town than in the country and that both in town and country the death-rates in males above the ages of 10 years considerably exceed those in females. There was no special prevalence of the disease in any part of the County during the year.

Diarrhoeal Diseases.

There are only 134 deaths recorded in the Administrative County as due to diarrhoea and enteritis, a number very much lower than that for 1911. The diarrhoeal death-rate was 0.20 per thousand persons living, a figure which is lower than the majority of the previous records. The deaths occurred as under :—

7 Municipal Boroughs	...	59 deaths.
35 Other Urban Districts	...	57 „
12 Rural Districts	...	18 „

Dukinfield Municipal Borough had a somewhat large share of these deaths—20 in all, Hyde 12 and the other Boroughs shewed no special incidence of the disease. The Urban District of Runcorn suffered rather heavily from diarrhoeal prevalence, there being 11 deaths from this group of diseases. No other part of the County seemed to have suffered particularly from this disease.

Confusion still exists as to the names used to denote diseases of a diarrhoeal nature. In many death returns it is common to find gastro-enteritis, muco-enteritis, or gastro-intestinal catarrh. It is therefore important to observe that all these terms have been condemned by the Royal College of Physicians and it is certainly expedient that their use should be discontinued altogether. The simple and unsatisfactory term diarrhoea, however, is gradually disappearing, and the more definite terms epidemic diarrhoea, or zymotic or infective enteritis are taking its place. In view of the very high importance attached to diarrhoeal diseases in connection with the problem of infantile mortality it is to be hoped that practitioners throughout the country will endeavour to assist those responsible for the public health by making use of the more definite terms mentioned. In the figures given above and in the statistical Table at the end of this Report

DEATH RATE FROM DIARRHOEAL DISEASES.

—1902-1912.—



RESPIRATORY DISEASES—EPIDEMIC INFLUENZA.

the following diseases are included—epidemic or summer diarrhœa, epidemic infective or zymotic enteritis, dysentery, dysenteric and choleraic diarrhœa, cholera (other than Asiatic or epidemic) and cholera nostras.

Respiratory Diseases.

The chief of these are bronchitis, broncho-pneumonia, pneumonia and pleursisy. The total deaths in the Administrative County during 1912 from this group of diseases were 140.3, equal to a death-rate per thousand persons living of 2.03. The death-rate from this group of diseases during the past ten years has been as follows :—

Year.			Death-rate.
1912	...	...	2.03
1911	...	...	1.97
1910	...	...	1.8
1909	...	...	2.3
1908	...	...	2.08
1907	...	...	2.2
1906	...	...	2.12
1905	...	...	2.26
1904	...	...	2.52
1903	...	...	2.22
1902	..	...	2.58

There is thus a perceptible decline in the death-rate from this class of disease, the rate recorded for 1912 being the third lowest for over 10 years.

It would appear that the mortality from pneumonia is greater in town than in country districts by more than 75 per cent. In general the mortality of males greatly exceeds that of females and amongst children under the age of 5 years pneumonia is particularly fatal.

Lobar Pneumonia is now definitely recognised as one of the infective diseases and for a good many years there has been a tendency amongst all connected with preventive medicine to regard most forms of pneumonia as infective.

Epidemic Influenza.

During 1912 there occurred 67 deaths in the County as the direct or indirect result of this disease. This shows a distinct increase on the records of the previous year.

Wallasey Borough and the Urban Districts of Lower Bebington, Lymm and Runcorn seem to have suffered rather more severely than the rest of the County from this disease.

PULMONARY TUBERCULOSIS.

Pulmonary Tuberculosis.

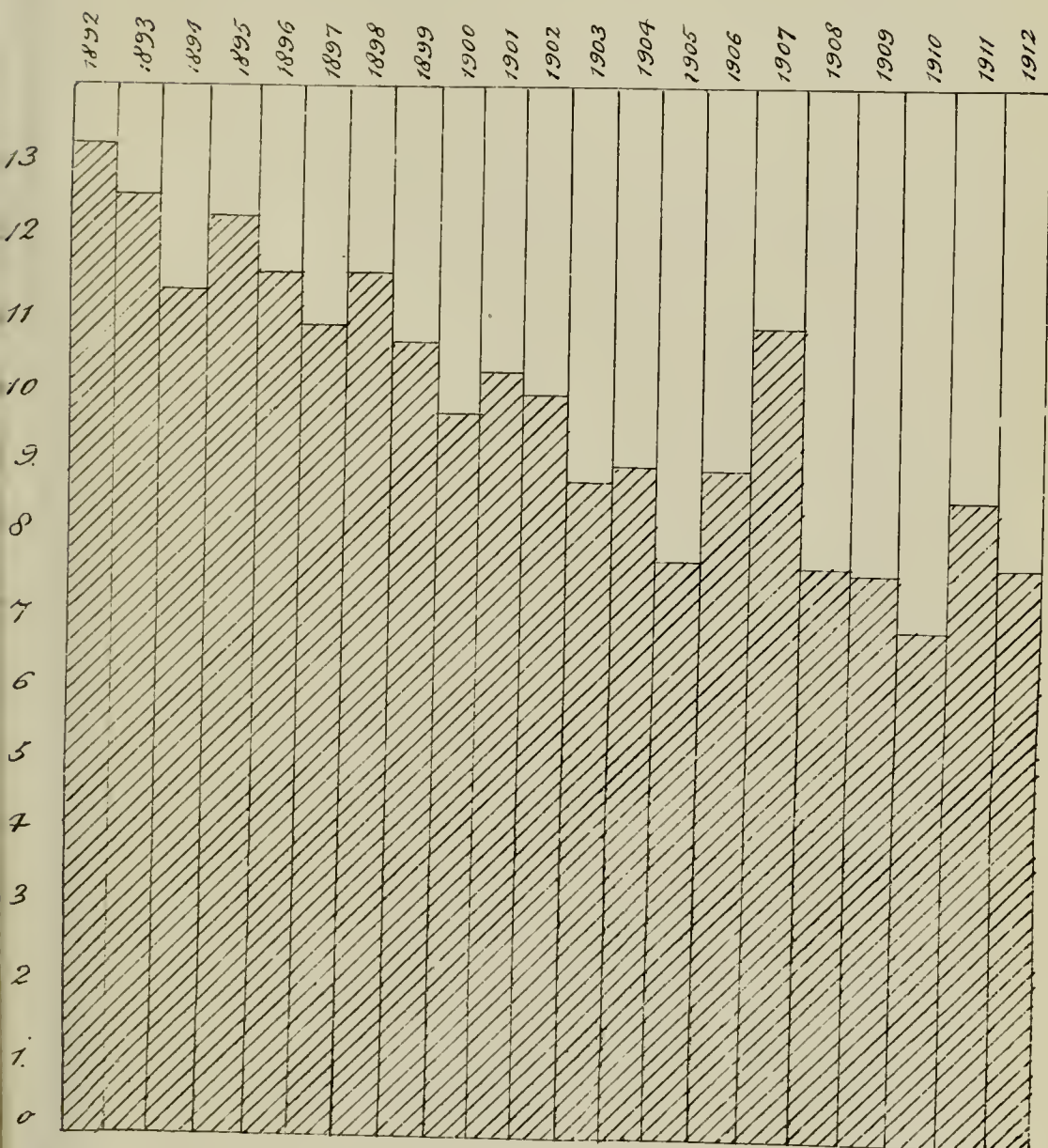
This disease claimed no fewer than 519 victims during 1912 in the Administrative County, a number equal to a death-rate of 0.75 per thousand persons living. This is a slightly more favourable rate than that recorded for the past year. There were 240 deaths from pulmonary tuberculosis in the seven Municipal Boroughs, 171 in the 35 Urban Districts, and 113 in the 12 Rural Districts. For some years I anticipate that two opposing factors will influence the death-rate from phthisis—the improvement of methods of diagnosis both clinical and bacteriological and the increasing attention to preventive and curative methods. Whether these will counterbalance each other it is not easy to say. As the matter is one of very considerable interest, I append the rates for the County of Cheshire and for England and Wales as far as the latter are within my reach.

Year.	England and Wales.	County of Cheshire.
1892	...	1.31
1893	...	1.25
1894	...	1.12
1895	1.426	1.22
1896	1.327	1.14
1897	1.356	1.09
1898	1.325	1.14
1899	1.339	1.06
1900	1.337	0.95
1901	1.264	1.02
1902	1.233	0.97
1903	1.203	0.86
1904	1.236	0.89
1905	1.140	0.76
1906	1.150	0.89
1907	1.140	1.08
1908	1.11	0.76
1909	1.08	0.74
1910	1.03	0.71
1911	1.015	0.85
1912	—	0.75

The death-rate from phthisis shews a decrease during the past 18 years, which has been fairly gradual and steady throughout and provided there is, as we are now fairly assured there will be, a stimulation of public and private efforts for the control of the disease this decrease ought to be maintained.

Specific inquiries were forwarded to all the districts in the Administrative County early in 1913 in order to ascertain what

DEATH RATES FROM PHTHISIS (PULMONARY CONSUMPTION) 1892-1912



steps were being taken in the matter of the prevention of consumption. The questions and replies are tabulated and submitted herewith. The whole matter is, however, now altered by the recent Tuberculosis Regulations, though by no means all Local Authorities have even yet embarked on a complete anti-tuberculosis programme.

		Any sanitary inspection of Patients' houses.	Any disinfection of ditto.	Any distribution of advice.	Any action re spitting.
Municipal Boroughs—					
Congleton	...	Yes.	Yes.	Yes.	Yes.
Crewe	...	Yes.	Yes.	Yes.	Sputum boxes.
Dukinfield	...	Yes.	Yes.	Yes.	No.
Hyde	...	Yes.	Yes.	Yes.	No.
Macclesfield	...	Yes.	Yes.	Yes.	Yes.
Stalybridge	...	Yes.	Yes.	Yes.	No.
Wallasey	...	Yes.	Yes.	Yes.	Notices exhibited in public places.
Other Urban Districts—					
Alderley Edge	...	Yes.	Yes.	No.	No.
Alsager	...	Yes.	Yes.	Yes.	Sputum cups & anti- septics provided.
Altrincham	...	Yes.	Yes.	Yes.	No.
Ashton-upon-Mersey	...	Yes.	Yes.	Yes.	No.
Higher Bebington	...	No.	No.	No.	No.
Lower Bebington	...	Yes.	Yes.	Verbal.	No.
Bollington	...	Yes.	Yes.	Yes.	Yes.
Bowdon	...	Yes.	Yes.	Yes.	Yes.
Bredbury and Romiley	...	Yes.	Yes.	Yes.	Yes.
Bromborough	...	Yes.	Yes.	Yes.	No.
Buglawton	...	Yes.	Yes.	Yes.	Yes.
Cheadle	...	Yes.	Yes.	Yes.	No.
Compstall	...	Yes.	Yes.	No.	Yes.
Ellesmere Port and Whitby	...	Yes.	Yes.	Yes.	Yes.
Hale	...	Yes.	Yes.	Yes.	No.
Handforth	...	No.	No.	No.	No.
Hazel Grove and Bramhall	...	Yes.	Yes.	Yes.	Yes.
Hollingworth	...	...	No information.		...
Hoole	...	Yes.	Yes.	Yes.	Sputum flasks and paper handker- chiefs.
Hoylake	...	Yes.	Yes.	Yes.	No.
Knutsford	...	Yes.	Yes.	Yes.	Yes.
Lymm	...	Yes.	Yes.	Yes.	No.
Marple	...	Yes.	Yes.	Yes.	Sputum cups & anti- septics provided.
Middlewich	...	Yes.	Yes.	Yes.	Yes.
Mottram	...	Yes.	Yes.	Yes.	No.
Nantwich	...	Yes.	Yes.	Yes.	Sputum flasks and handkerchiefs.
Neston and Parkgate	...	Yes.	Yes.	Yes.	No.
Northwich	...	Yes.	Yes.	Yes.	No.
Runcorn	...	Information not furnished.			
Sale	...	No.	No.	Verbal	No.
Sandbach	...	Yes.	Yes.	Yes.	Sputum flasks.

PULMONARY TUBERCULOSIS.

			Any sanitary inspection of Patients' houses.	Any disinfection of ditto.	Any distribution of advice.	Any action re spitting.
Tarporley	...	...	Yes.	Yes.	Yes.	Yes.
Wilmslow	...	...	Yes.	Yes.	Yes.	No.
Winsford	...	...	Yes.	Yes.	Yes.	No.
Yeardsley-cum-Whaley	...	...	No cases notified.			
Rural Districts—						
Bucklow	...	...	Yes.	Yes.	Yes.	No.
Chester	...	...	Yes.	Yes.	Yes.	Yes.
Congleton	...	...	Yes,	Yes	Yes.	Sputum flasks.
				on death.		
Disley	...	...	Yes.	Yes.	No.	No.
Macclesfield	...	...	No.	No.	No.	No.
Malpas	...	...	Yes.	Yes.	Yes.	Yes.
Nantwich	...	...	Yes.	Yes.	Yes.	Yes.
Northwich	...	...	Yes.	Yes.	Yes.	No.
Runcorn	...	...	On re- quest.	Yes.	No.	No.
Tarvin	...	...	Yes.	Yes.	Yes.	Yes.
Tintwistle	...	...	Yes.	Yes.	Yes.	No.
Wirral	...	...	No.	When requested.	No.	No.

There is in the reports of District Medical Officers of Health an increase in the number of special allusions to the control of this disease.

None of the Local Authorities, however, perhaps with the exception of a few Boroughs, appear to have utilised to the full the powers conferred on them by the recent Tuberculosis Regulations. These powers briefly enable Councils, acting on the advice of their Medical Officers of Health, to:—

- (a) Supply all such medical or other assistance as may reasonably be required for the *detection* of Pulmonary Tuberculosis :
- (b) Supply all such facilities and articles as may be reasonably required for the *detection* of Pulmonary Tuberculosis :
- (c) Supply medical and other assistance and all reasonable facilities and articles for *preventing the spread of infection* :
- (d) Supply medical and other assistance and reasonable facilities and articles for *removing conditions favourable to infection* :

- (e) Appoint such Officers as may be necessary for this purpose :
- (f) Provide and publish placards, handbills or leaflets or summaries of information and instruction respecting Pulmonary Tuberculosis and the precautions to be taken against it.

The possibilities opened up by the granting of these powers are very great and if utilised to the full would undoubtedly lighten the burden which in an indirect manner is imposed by the National Insurance Act. I have drawn up a list of suggestions for action and draft forms of inquiry, leaflets of instruction and so forth which have been circulated to all District Medical Officers of Health.

During the year I also addressed the following letter to the Local Government Board with a view of elucidating some of the doubtful points of procedure under the Tuberculosis Regulations and I append a copy of this letter and the Board's reply thereto :—

COUNTY EDUCATION OFFICE,
CHESTER, 26TH NOVEMBER, 1912.

SIR,

I find that there is a fairly general ignorance on the part of Local Authorities in the Administrative County of Cheshire as to the effect of Article IX. of the Order of your Honourable Board on the Notification and Treatment of Pulmonary Tuberculosis, dated 15th November, 1911, the terms of which are repeated in Article XIII. of the Order of 19th December, 1912. More particularly I find that Local Authorities do not know what is comprised under the terms "other assistance and all such facilities and articles as may reasonably be required . . . for preventing the spread of infection and for removing conditions favourable to infection."

I have pointed out to many of these Local Authorities what I conceive to be implied by the Order, but they seem to want some more authoritative statement. To this end I should like to be informed whether Article IX. of the Order mentioned authorises Local Authorities in proper cases, and on the advice of their Medical Officer of Health, to provide :—

- (a) Shelters for home use, including the provision of a place for storing those not in use, their conveyance to and from the homes of patients and the labour necessary to erect them and take them down.
- (b) Sputum flasks or boxes.

PULMONARY TUBERCULOSIS.

- (c) Paper pocket-handkerchiefs.
- (d) Rugs or blankets for use in shelters.
- (e) Hot water-bottles for use in shelters.
- (f) Monetary allowance to cover the cost of extra rent in cases where it is advisable for the patient to occupy a separate bedroom and such extra bedroom is not available in the house occupied by him.
- (g) Monetary allowance to cover the cost of removal to premises in which a separate bedroom for the patient can be obtained.
- (h) Bed and bedding where it is desirable for the patient to occupy a separate bed.
- (i) The supply of extra nutriment, such as milk, beef-tea, &c.
- (j) The supply of disinfectants.

Should there be any other forms of assistance which are available under the Order and which I have not mentioned, I should be obliged if you would include a note of them in your reply.

I suggest that I might be authorised to send a copy of your reply to the several Local Authorities in Cheshire and perhaps you would also consider whether some good purpose might not be served by its publication in some of the public health journals.

If you should concur in the publication of the correspondence, I should be glad to be informed.

I am, Sir, yours faithfully,

MEREDITH YOUNG,
County Medical Officer of Health.

The Chief Secretary,
Local Government Board,
Whitehall, S.W.

LOCAL GOVERNMENT BOARD,
WHITEHALL, S.W.,
14TH JANUARY, 1913.

SIR,

I am directed by the Local Government Board to advert to your letter of the 26th November last, with reference to the powers of Local Authorities in the County of Chester in relation to Article IX. of the Public Health (Tuberculosis) Regulations, 1911.

With regard to the items (a), (d) and (e) referred to in your letter, I am to state that the Board are advised that it would be competent to any Urban or Rural Sanitary Authority in the County, under the provisions of Section 131 of the Public Health Act, 1875, to provide portable shelters (with the necessary permanent equipment) as temporary places for the reception of the sick inhabitants of their district who may be suffering from consumption. The Board consider that services incidental to the use of these shelters, such as are referred to in item (a) may be regarded as coming within the scope of the section, but they are disposed to think that such articles as rugs, blankets and hot water bottles should only be lent out in exceptional cases. I am, however, to state that where a complete scheme of institution treatment of tuberculosis is undertaken by the County Council, it may be more convenient that shelters should be provided by them as part of the equipment of their dispensaries.

As regards the articles referred to in items (b), (c) and (j), I am to point out that, under Article IX. (1) of the Regulations, a Local Authority are empowered to provide all such articles as may reasonably be required for the detection and prevention of tuberculosis. The Board are of opinion that the items referred to are such as are contemplated by the terms of the Article.

With reference to the items (f), (g) and (h), I am to state that it does not appear to the Board that a Sanitary Authority have power to incur any expenditure either in connection with the provision of a separate bedroom for the sole use of a person suffering from tuberculosis, where there is no such room available for his separate accommodation in the house occupied by him, or in connection with the supply of beds and bedding to enable such patient to occupy a separate bed, except in so far as beds may be provided for the equipment of temporary shelters lent out by the Local Authority.

I am to state with regard to item (i) that the Regulations do not authorise Sanitary Authorities to supply food to persons in their own homes. If a person suffering from tuberculosis requires, in his own home, nourishment which he cannot himself provide, the case would seem to be one for the Guardians to deal with, and they would have full power on the advice of their Medical Officer to provide at a reasonable expense what is necessary for the proper treatment of the patient. In this connection I am to draw attention to the marked portion of the enclosed copy of a circular letter, issued by the Board, with reference to the administration of Out-door Relief in which it is

PULMONARY TUBERCULOSIS.

explained that a person who is not destitute in the sense that he is entirely devoid of the means of subsistence, may yet be destitute in that he is unable to provide for himself the particular form of medical attendance or treatment of which he is in urgent need.*

I am to add that the Board would see no objection to the transmission of copies of this correspondence, the several Local Authorities in the County, as suggested in the penultimate paragraph of your letter. Your suggestion as to its publication in some of the Public Health Journals has been noted.

I am, Sir,

Your obedient servant,

WALTER T. JERRED,

Assistant Secretary.

MEREDITH YOUNG, Esq.,

Medical Officer of Health

of the Cheshire County Council.

* The paragraph in the Circular referred to reads as follows:—

Relief from public funds may only be given within the limits prescribed by the law and the law as it is at present stands limits such relief to cases of destitution. The Guardians are entrusted with the task of deciding upon the evidence before them whether a particular person whose case is under consideration is or is not destitute; and in determining this question they have to remember that a person may be destitute in respect of the want of some particular necessity of life without being destitute in all respects; as, for instance, a person who is not destitute in the sense that he is entirely devoid of the means of subsistence, may yet be destitute in that he is unable to provide for himself the particular form of medical attendance or treatment of which he is in urgent need.

Copies of these letters were printed and circulated to all Medical Officers of Health in the County on January 18th, 1913. It was hoped that by this means some of the dilatory Councils might be spurred to action, but I do not really think much good has actually been effected.

A somewhat extraordinary procedure is being adopted by some medical men in the County. They are obliged, under a penalty, to notify all cases of tuberculosis, but in quite a number of instances they have done this without informing the patient that he is suffering from a notifiable disease or that a notification has been sent in. The result is that when the Medical Officer of

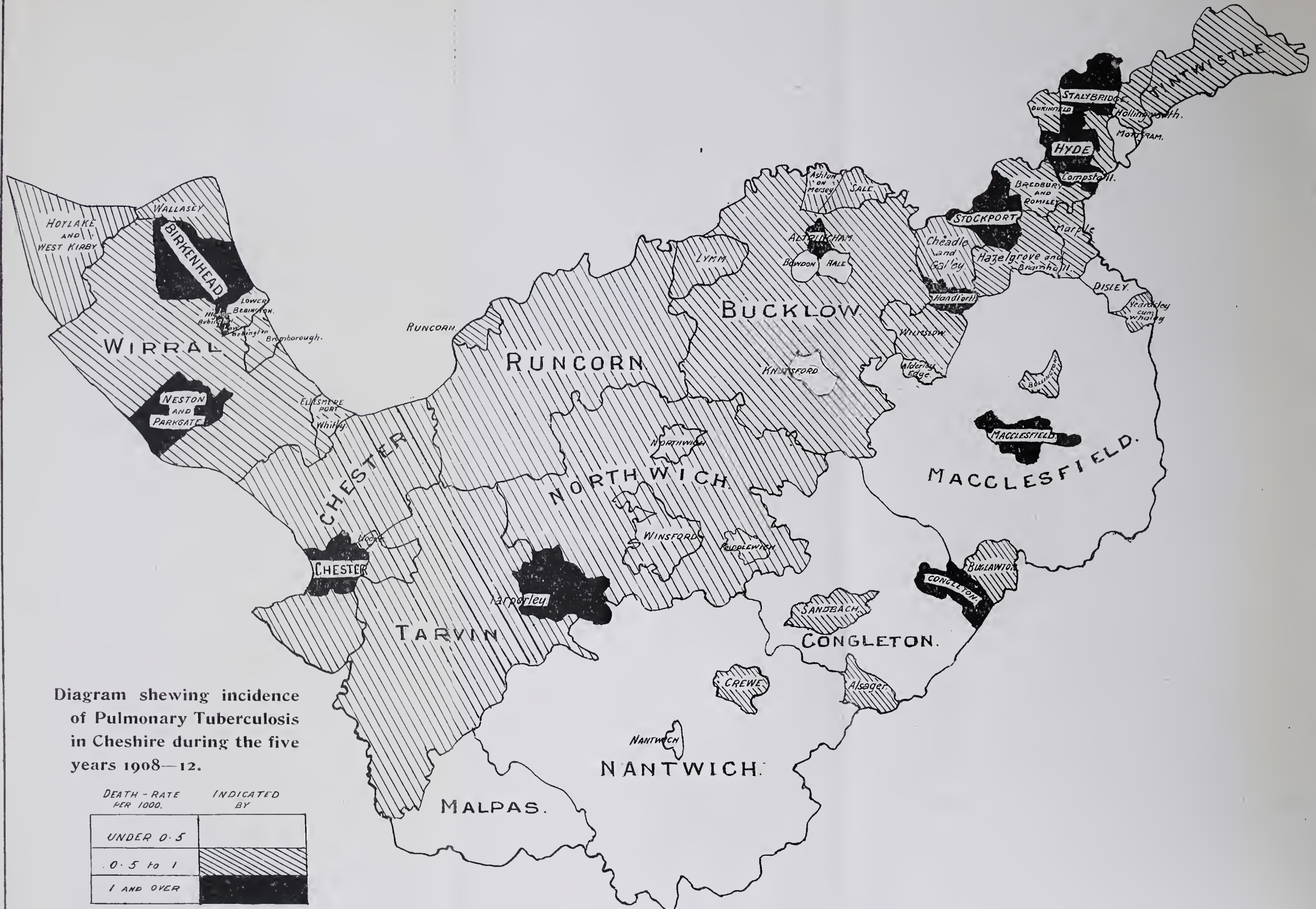


Diagram shewing incidence
of Pulmonary Tuberculosis
in Cheshire during the five
years 1908—12.

DEATH - RATE PER 1000.	INDICATED BY
UNDER 0.5	
0.5 to 1	
1 AND OVER	

Health calls to make the necessary inquiries, his first question or remark creates amazement and annoyance of a quite natural character. It is to be hoped that this spirit of disloyalty, for it really amounts to this, will speedily die out. The duty of the Medical Officer of Health is already invidious enough in such cases, without the addition of this stumbling block. One can hardly reconcile such an attitude on the part of any medical attendant with his duty to his patient and the patient's relatives, for how is the patient to prevent reinfection of himself and infection of others, and how is he to observe the necessary hygienic *régime* unless he is duly forewarned by the one person whose primary duty it is to give this solemn warning?

Dr. George Jubb, Assistant School Medical Officer, has very kindly prepared a map shewing the extent to which the various districts in the Geographical County have been affected by pulmonary tuberculosis as evidenced by the average mortality from that disease during the five years 1908-12. This map speaks for itself. It is a little striking to find that such places as Compstall Urban District, Altrincham Urban District, Handforth Urban District, Tarporley Urban District and Neston and Parkgate Urban District should be amongst the "black spots" of Cheshire (using this term with no intention of commenting adversely upon the character of the districts in other respects). The fact may probably be explained in the case of the Tarporley and Neston Districts by the emigration of tuberculosis patients to these districts for health purposes. In the case of Compstall and Handforth Urban Districts the figures on which the rate has been calculated are no doubt small and this may in part account for their position. In the case of Altrincham Urban District the presence of a large working-class population no doubt is responsible for the high tuberculosis death-rate.

In order to encourage inquiry into cases of pulmonary tuberculosis on a uniform and thorough basis and in order to afford me an opportunity of judging whether any action by your Public Health Committee in the way of assistance, advice, stimulation, &c., was desirable, your Council agreed to furnish District Medical Officers of Health with forms of inquiry into such cases and to pay them 2/6 for each properly filled in form furnished to this department. In the majority of cases the District Medical Officers of Health fell in readily with this proposal and a large number of forms have been received. From these, as well as from the statements made in their Annual Reports, it is evident that the anti-tuberculosis programme is being well carried out in the County. I have summarised a few of the leading points in 92 of these cards selected at random from Boroughs and Urban and Rural Districts

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and from these your Committee will see that with the sole exception of the provision of shelters things are going forward well in this section of preventive work.

It is, of course, impracticable to erect shelters in many districts owing to the small amount of yard or garden space attached to the houses. But the opposition of the patient and relatives is, I fancy, the chief obstacle: they look upon a shelter as advertising the fact that they are suffering from 'consumption.' This feeling is after all but a natural one and with further education of the public it will largely disappear. Already the public are beginning to realise that a 'consumptive' who knows how to avoid risk to others is in no sense a person to be avoided.

The Table which follows shews a striking difference in the duration of the illness and also the pitiful fact that in a large number of cases the patient cannot have a bedroom to himself but that it is shared by one, two, three or even four others.

	Sex.	Age.	Occupation.		Duration of illness, years.	Do Council supply disinfectants and disinfect rooms.	Shelter used.	Will Council loan Shelter.	Home contacts.	No. sleeping in same room,
FROM BOROUGHs.										
1.	F.	45	Card-room	...	5	Yes	No	No	3	1
2.	F.	18	Envelope Maker	...	2	Yes	No	No	8	0
3.	F.	28	Weaver	...	2½	Yes	No	No	2	0
4.	M.	68	Cotton Operative	...	1	Yes	No	No	1	1
5.	F.	9	Scholar	...	9	Yes	No	No	5	0
6.	F.	49	Card-room	...	1	Yes	No	No	0	0
7.	M.	17	Clerk	...	1	Yes	No	No	1	0
8.	M.	7	Scholar	...	4½	Yes	No	No	3	1
9.	M.	23	Labourer	...	5	Yes	No	No	3	0
10.	M.	6	Scholar	...	½	Yes	No	No	2	2
11.	M.	33	Caretaker	...	¼	Yes	No	No	1	1
12.	M.	36	Fitter	...	1	Yes	No	Yes	1	1
13.	M.	58	Clerk	...	2½	Yes	No	Yes	1	1
14.	M.	26	Fitter	...	½	Yes	No	Yes	4	1
15.	F.	28	Factory-hand	...	2	Yes	No	Yes	4	0
16.	M.	11	Scholar	...	1	Yes	No	Yes	5	0
17.	M.	34	Clerk	...	1	Yes	No	Yes	2	0
18.	F.	18	Factory-hand	...	1½	Yes	No	Yes	6	0
19.	F.	37	Housewife	...	1½	Yes	No	Yes	3	0
20.	M.	41	Draughtsman	...	½	Yes	No	Yes	6	0
21.	F.	33	Housewife	...	2	Yes	No	Yes	3	2
22.	F.	24	Fustian Cutter	...	1½	Yes	No	No	4	1
23.	M.	63	Stone Mason	..	2½	Yes	No	No	2	0

PULMONARY TUBERCULOSIS.

	Sex.	Age.	Occupation.		Duration of illness, years.	Do Council supply disinfectants and disinfect rooms.	Shelter used.	Will Council loan Shelter.	Home contacts.	No. sleeping in same room.
24.	M.	40	Hairdresser	...	1	Yes	No	No	1	1
25.	F.	30	Nil	...	1	Yes	No	No	3	0
26.	F.	31	Stewardess	...	$\frac{1}{2}$	Yes	No	No	3	3
27.	M.	19	Saddler	...	1	Yes	No	No	3	1
28.	F.	41	Housewife	...	$\frac{1}{2}$	Yes	No	No	3	1
29.	M.	32	Cotton Porter	...	1	Yes	No	No	3	1
30.	M.	27	Nil	...	$\frac{1}{2}$	Yes	No	No	2	0
31.	F.	27	House-keeper	...	5	Yes	No	No	2	0
32.	M.	30	Labourer	...	9	Yes	No	No	5	2
33.	F.	51	Housewife	...	3	Yes	No	No	3	0

FROM URBAN DISTRICTS.

34.	M.	30	Shunter	...	$\frac{1}{4}$	Yes	No	No	8	2
35.	F.	45	Housewife	...	1	Yes	No	No	3	1
36.	F.	28	Towel Weaver	...	$\frac{1}{4}$	Yes	No	No	1	1
37.	F.	62	Housewife	...	$\frac{1}{4}$	Yes	No	No	5	0
38.	M.	35	Out-door	...	2	No	No	No	7	1
39.	M.	36	Silk Spinner	...	9	Yes	No	No	4	0
40.	M.	41	Broker	...	1	Yes	No	No	4	1
41.	F.	18	Fustian Cutter	...	1	Yes	No	No	4	0
42.	F.	35	Nil	...	$1\frac{1}{2}$	Yes	No	No	3	1
43.	F.	28	Nil	...	1	Yes	No	No	4	0
44.	M.	21	Clerk	...	$\frac{1}{4}$	Yes	No	No	4	0
45.	M.	30	Labourer	...	1	Yes	No	No	1	1
46.	M.	17	Clerk	...	$\frac{1}{2}$	Yes	No	No	3	0
47.	M.	52	Chemical Worker	...	1 month	Yes	No	No	3	1
48.	M.	57	Labourer	...	1	Yes	No	No	5	0
49.	F.	18	Nil	...	$\frac{3}{4}$	Yes	No	No	7	4
50.	M.	10	Scholar	...	1 month	Yes	No	No	4	2
51.	F.	37	Housewife	...	3	Yes	No	No	3	0
52.	F.	30	Nil	...	1	Yes	No	No	2	0
53.	F.	38	Housewife	...	1	Yes	No	No	6	1
54.	F.	38	Dressmaker	...	10	Yes	No	No	3	1
55.	F.	35	Teacher	...	3	Yes	No	No	3	1
56.	F.	23	Weaver	...	$\frac{1}{2}$	Yes	No	No	3	1
57.	F.	40	Nil	...	27	Yes	No	No	6	0
58.	F.	17	Field-worker	...	2	Yes	No	No	6	3
59.	M.	25	Grocer	...	$\frac{1}{2}$	Yes	No	No	3	0
60.	M.	20	Labourer	...	5	Yes	No	No	6	2
61.	M.	26	Shoemaker	...	$1\frac{1}{2}$	No	No	No	3	0
62.	M.	67	Labourer	...	1	Yes	No	No	5	1
63.	M.	51	Hawker	...	6	No	No	No	3	C.L.
64.	M.	35	Cabinet Maker	...	$\frac{1}{2}$	Yes	No	No	6	house. 3

PULMONARY TUBERCULOSIS.

	Sex.	Age.	Occupation.		Duration of illness, years.	Do Council supply disinfectants and disinfect rooms.	Shelter used.	Will Council loan Shelter.	Home contacts.	No. sleeping in same room.
65.	M.	32	Labourer	...	3	Yes	No	No	6	3
66.	M.	7	Scholar	...	$\frac{1}{2}$	Yes	No	No	4	3
67.	M.	24	Clerk	...	$\frac{1}{2}$	No	No	No	2	0
68.	F.	35	Weaver	...	$2\frac{1}{2}$	Yes	No	No	2	1

FROM RURAL DISTRICTS.

69.	M.	27	Signalman	...	1	Yes	No	No	5	2
70.	M.	27	Cabinet Maker	...	1	Yes	No	No	2	0
71.	M.	16	Miller	...	6	Yes	No	No	2	0
72.	F.	16	Nil	...	2	Yes	Yes	No	3	0
73.	M.	11	Scholar	...	2	Yes	No	No	7	3
74.	M.	30	Farmer	...	2	Yes	No	No	4	0
75.	F.	27	Housewife	...	4	Yes	No	No	2	0
76.	F.	64	Housewife	...	$\frac{1}{4}$	No	No	No	3	0
77.	F.	40	Cotton Weaver	...	1	Yes	No	No	3	1
78.	M.	17	Fitter	...	15	No	No	No	4	0
79.	F.	6	Nil	...	$\frac{1}{2}$	Yes	No	No	2	0
80.	F.	50	Housework	...	$\frac{1}{2}$	Yes	No	No	7	1
81.	F.	$5\frac{1}{2}$	Nil	...	3	Yes	No	No	7	1
82.	F.	43	Nil	...	1	Yes	No	No	7	1
83.	M.	45	Farmer	...	1	Yes	No	No	4	1
84.	F.	7	Scholar	...	3	Yes	No	No	9	6
85.	M.	18	Labourer	...	$2\frac{1}{2}$	Yes	No	No	2	0
86.	M.	6	Scholar	...	2	Yes	No	No	5	1
87.	F.	32	Servant	...	3	Yes	No	No	5	0
88.	M.	48	Platelayer	...	5	Yes	No	No	3	0
89.	M.	7	Scholar	...	$\frac{1}{2}$	Yes	No	No	4	0
90.	F.	4	Nil	...	1	No	No	No	3	0
91.	M.	28	Labourer	...	2	No	No	No	4	0
92.	M.	28	Fitter	...	$\frac{1}{4}$	Yes	No	No	3	0

I append certain important paragraphs from the Final Report of the Departmental Committee on Tuberculosis, dated March, 1913.

“Methods of prevention may be divided into two classes:—

- (1) Those whose object is to prevent the entrance of tubercle bacilli into the human system.
- (2) Those whose object is to prevent persons into whose system tubercle bacilli have entered from developing active disease.

“These two classes of measures are not mutually exclusive, and it is highly undesirable that one class should be adopted to

the exclusion of the other. The Committee are of opinion that it is idle to hope either that infection can be entirely eliminated, or that, apart from the discovery of some special process of immunization, the resistant powers of human beings can be developed to such an extent that infection may be ignored. But there is good reason to believe that much may be done to reduce the incidence of tuberculosis on the lines of diminishing the existing amount of infective material, and of increasing the powers of resistance in those who are exposed to infection. These two methods of preventing the disease should, therefore, be employed simultaneously."

Methods of diminishing Infection.—"Under this heading may be grouped all the measures which tend to diminish the sources of supply of infective material and those which prevent its dissemination. Broadly speaking, the most important of these measures are the elimination of tubercle bacilli from food, and the prevention of the spread of infection by persons already suffering from the disease."

Food.—"The Committee deem it of great importance that every effort should be made to secure that the food of the country should be free from tubercle bacilli."

"The principle classes of food in which those bacilli are at present found are meat, milk and milk products."

"With regard to the sale of tuberculous meat, the existing powers of local authorities, to which reference was made in the interim report, are probably adequate for the protection of the community against the dangers of infection from this source and, provided those powers are effectively put into force, no further legislation may be necessary in that direction. With regard to the supply of milk and milk products, the Committee consider the question of such importance that they have devoted a part of this report exclusively to its discussion."

Infection by Tuberculous Persons.—"The prevention of the spread of tubercle bacilli by persons already suffering from the disease is a question which is most intimately related to the treatment of those persons. One of the principal sources of danger at the present time is the existence of a number of persons in the more acute and advanced stage of the disease living in the intimate contact with their families and neighbours which is necessitated by the ordinary conditions of their lives. The danger is frequently increased by the carelessness of the persons affected

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and of those living in contact with them. The Committee are of opinion that by means of treatment and education the risk of infection by such persons can be very largely diminished. But they do not think that treatment and education will be sufficient to eliminate all dangers from this source, as they recognize that some of these persons are apt to neglect, or are unable to carry out the necessary hygienic precautions. It is true that most tuberculous patients who have been taught to live as much as possible in fresh air, to dispose in a proper manner of their sputum, and generally to observe the necessary hygienic precautions, are in a position to minimize or even to eliminate the risk to which their continued presence among uninfected persons may give rise. But there may be a danger in leaving such a person in his existing surroundings, particularly where, as is often the case, the person is living in crowded conditions which necessitate very intimate contact with the members of his family and others. Infection is frequently disseminated by persons suffering from advanced pulmonary tuberculosis who are in the habit of entering and leaving Poor Law Institutions, having regard merely to their own convenience, and not to the interests of their family or of the community in which they live.

“The Committee desire, therefore, to recommend as an effective means of preventing the spread of the disease, the compulsory isolation of certain cases which are in a state of high infectivity, particularly in those instances where the patients’ surroundings are such as to increase the risk of other persons becoming infected. At the same time they desire to recommend that isolation should be carried out with all possible regard to the feelings of the patients and of their families and friends and that any powers of compulsory isolation and detention possessed by or hereafter to be conferred upon Local Authorities should be exercised with discrimination and only after those authorities are satisfied on thorough inquiry that the public interest requires them to be enforced in the particular instances under consideration. So far as may be practicable patients should not be removed to places difficult of access from their homes, and arrangements should be made to facilitate visits from their families and friends.”

“While recommending isolation in certain cases, the Committee do not wish it to be inferred that they desire in any way to minimise the importance of education and supervision as a means of preventing the spread of tuberculosis. There are many cases where isolation is quite unnecessary and all that is needed is that the patient should observe certain comparatively simple precautions. But it is of the greatest importance that the patient should be

properly taught what those precautions are and, further, that some steps should be taken to ensure that those precautions, after being learned, are not forgotten or neglected. It is in this connection that much valuable work may be done by voluntary care committees and visits from trained nurses or properly qualified health visitors working in close touch with the Medical Officer of Health and the tuberculosis officer, and by lectures and the dissemination of literature on the subject.

“The Committee think it most desirable to secure the systematic and thorough disinfection of premises, which there is reason to believe, harbour tubercle bacilli. They are aware that many Local Authorities are fully alive to their responsibilities in this connection, but they think it well to emphasize the importance of this work as a factor which will lead to the diminution of risk of infection. *Steps should be taken to secure that all houses in which it is known that persons suffering from tuberculosis live, should be thoroughly disinfected at frequent and regular intervals.* It is only by these means that the danger arising from desiccated tuberculous expectoration can be reduced to a minimum.

“In connection with the prevention of the spread of the disease by means of infection from one human being to another, the Committee wish to lay stress on the importance of early diagnosis of the disease. Quite apart from the fact that early diagnosis greatly increases the chance of ultimate recovery, there is no doubt that the detection of the disease in its early stages is an important factor in decreasing the danger of infection. In the early stages of the disease the infectivity of the patient is very much less than in the later stages. Patients whose disease has been diagnosed early can, in many instances, be prevented from becoming a serious source of danger to their neighbours.

“The Committee are of opinion that the establishment of the dispensary system recommended in their interim report will do much to facilitate the early recognition of the disease. No effort should be spared, whether by way of research with a view to discovering new methods of diagnosis, or by the encouragement of the systematic and intelligent use of existing methods, especially in connection with the observation and examination of contacts, to ensure that the existence of the disease should be recognised in its earliest stages.”

Methods of increasing Powers of Resistance.—“Under this heading may be placed all measures which tend to raise the standard of living and environment of the community and thus

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to render the defensive forces of the body as strong as possible. *Ceteris paribus*, a healthy, sober, well-fed, well-clothed and well-housed community is far less liable to infection from tuberculosis than one in which disease and drinking habits are prevalent, whose members are inadequately fed and clothed, and in which houses are crowded and insanitary. It may broadly be said that an advance in material prosperity of the community as a whole will be reflected in a decreased incidence of tuberculosis.

“ It must not, however, be supposed that an improvement of material conditions would immediately result in the elimination of tuberculosis. Though the prevalence of tuberculosis is at the present time less among the well-to-do classes than among the poorer classes, the well-to-do classes are very far from being immune. Many other factors exist which have the effect of weakening the defensive forces of the body and of rendering it an easier prey to the invading bacilli. The Committee have already said in their Interim Report that constitution, habits and methods of life, the nature of an individual's occupation and the diseases and accidents to which he may have been subjected are all factors which cannot be neglected in considering the incidence of tuberculosis, and these factors need not necessarily be in any way connected with the poverty or wealth of the individual.

“ At the same time it remains true that any measures which result in a general improvement in the standard and condition of life are of the greatest importance in the prevention of tuberculosis.

“ How to effect this improvement is a question of difficulty and complexity that is exercising the minds of many people at the present time. To attempt to deal with it would be to step beyond this Committee's functions. They propose merely to touch briefly on one or two salient points which are intimately connected with the incidence of tuberculosis.”

Housing.—“ The Committee believe that much may be done to assist in preventing tuberculosis by improvement of the housing conditions in this country. There is no doubt that dirty, ill-ventilated, dark, damp and otherwise insanitary houses are provocative of the disease. There is equally no doubt that the incidence of the disease is greater where families are crowded into one or two dirty and ill-ventilated rooms, than where better conditions are obtainable, or where the rooms are kept clean and ventilated. The air of an overcrowded room rapidly becomes and usually remains foul, lowering the vitality of the occupants. Light, fresh air (or at least movement of air), and space are the

conditions which it is most desirable to obtain. The Committee are aware that light and fresh air are more difficult to obtain in cities and that, even where fresh air is obtainable, the poorer classes are often driven to keeping their rooms stuffy and ill-ventilated, owing to the expense of providing sufficient clothing and artificial heat to maintain adequate warmth. The Committee fully realise the difficulties surrounding the housing question, but they consider improvement in the present state of affairs both desirable and possible and that, even amongst the poorest, an increased appreciation of the importance of cleanliness and ventilation, &c., would tend to decrease the ravages of the disease. The Committee hope that much improvement may be effected by means of schemes for town planning and garden cities."

Social and Economic Causes of Tuberculosis.—"There is great need for research work in connection with the social and economic causes of tuberculosis. The present knowledge on the subject, though increasing rapidly, is inadequate, and it is highly desirable that more information should be obtained, and that the information, when obtained, should be sifted and co-ordinated so as to serve as a reliable basis for the preparation of remedial measures. Inquiries should be made into the causes which operate so as to give rise to the existing occupational incidence of tuberculosis, and into local and other factors which have a bearing on the problem of the distribution of the disease. In another part of this Report the Committee have indicated the lines upon which a scheme for research work might be instituted, and provision is made to facilitate the making of such inquiries."

Bovine Tuberculosis.—"The Committee having regard to the findings and reports of the Royal Commission on Tuberculosis and to other investigations, are of opinion that the bacillus of bovine tuberculosis is a cause of tuberculosis in man and, to a greater extent, in children. In a few cases the source of infection has apparently been traced to a particular milk supply.

"It is also clear that the farming and dairy industries suffer and will continue to suffer heavy annual financial loss so long as tuberculosis continues to prevail among bovines and pigs.

"They consider it, therefore, very important that steps should be taken with a view to the ultimate eradication of tuberculosis from animals and to rendering milk and milk products as far as possible free from tubercle bacilli.

"The Committee are of opinion that the best way to attain complete security from the danger of bovine infection is entirely

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to eradicate tuberculosis from the cattle of this country and to take such measures as will secure, so far as possible, the absolute innocuity of imported milk and milk products. They do not propose to discuss the details of prospective legislative measures or orders which may be necessary in order to attain this object, but merely to state a few conclusions and recommendations to which they are agreed and which have a bearing on the problem.

“The Committee are of opinion that the ultimate eradication of animal tuberculosis is not impossible of achievement, but is likely to be a slow process, and must depend upon co-ordinated and continuous effort. No single or purely local effort will suffice to eliminate such tuberculosis.

“During the time that must elapse before bovine tuberculosis can be eliminated, special attention should be paid to the milk supply of the country with a view to rendering it as safe as possible and a great deal can be done towards securing this object.”

Milk—“Milk can become infected with tubercle bacilli in various ways. The most usual case is where the milk is the product of a tuberculous cow, particularly when the cow is suffering from generalised tuberculosis or udder disease. Milk which is non-tuberculous in its origin may also become infected on the farm, during transit and distribution, in the shop where it is sold, and in the house of a consumptive person. The Committee recommend that additional measures should be taken and existing and proposed regulations strictly enforced so as to diminish the risk of such contamination from human and bovine sources.

“The Committee welcome the proposed legislation dealing with the question of milk supply, but they do not desire to discuss in detail or to criticise any proposals that have been made. They wish, however, to propound certain broad general principles, which they have arrived at independently, and which they consider should form the basis of any scheme for dealing with milk.

“They are of opinion that such legislation should be upon the widest possible basis, should include the whole country and should include provisions whereby special powers might be conferred by regulation upon Local Authorities where such special powers are required. The central authority should have adequate powers and should be required to enforce the carrying out of such legislation in the event of default by Local Authorities.

“The Committee are of opinion that tuberculous milk can be rendered innocuous so far as infection from tuberculosis is concerned, by sterilization or pasteurization carried out under

proper supervision and conditions. There is, however, difference of opinion in the medical profession as to whether milk that has been so treated is wholly satisfactory upon other grounds. The Committee have had neither the time nor the means to go into this question with a view to giving a considered opinion."

Tuberculous Cattle.—"The Committee desire to state that they have come to the following conclusions with regard to tuberculous cattle :—

- (1) That the presence of tuberculosis in a herd exposes the non-tuberculous cows to infection.
- (2) That there are satisfactory tests available for the detection of tuberculosis in cattle.
- (3) That a sound herd living in hygienic surroundings should remain sound, provided that it is periodically tested and reacting animals are weeded out, provided also that, after any such removals, the premises are thoroughly disinfected and that no tuberculous animals are added to the herd.
- (4) That the slaughter of cows with tuberculosis of the udder or in the advanced stages of the disease will diminish the risk of infection to human beings by milk.

"The Committee do not propose to enter into the question of how public money (whatever its source or amount) could be most usefully spent for the purpose of eradicating tuberculosis from animals. They are, however, of opinion that, in the preparation of any scheme for the eradication of bovine tuberculosis, the following points require careful consideration and should, so far as possible, be provided for :—

- (1) County Councils and County Borough Councils should have powers and be required to inspect herds, dairies and farm buildings and to administer all enactments relating thereto, their work being subject to adequate supervision by a central authority. As regards the local inspecting authorities, this recommendation may require some modification in Scotland where local government is somewhat differently organised.
- (2) Only guaranteed tuberculin should be used, and facilities should be given, subject to such

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conditions as may be thought desirable, for the free testing of cows by qualified and authorised persons.

- (3) Certain cows should be slaughtered, both in the interest of the public and of the dairy industry.
- (4) Measures should be uniform in character and the same principles should be applied to the whole country.
- (5) The public should be educated so as to appreciate the greater value of pure tubercle-free milk and milk products.
- (6) Farmers should be taught that tuberculosis in cattle is infectious and not hereditary.

"There are problems connected with the relation between tuberculosis in cattle and tuberculosis in human beings which are still unsolved. The Committee understand that some of these are being investigated at the present moment. They believe it to be of the greatest importance, with a view to dealing with tuberculosis in human beings that further research into these and other similar problems should continue to be carried out."

Children.—"Tuberculosis, in one form or another, is widely prevalent among children and the Committee consider the evidence convincing that children are infected through tuberculous milk, as well as from other sources.

"They recognise the importance of early diagnosis of tuberculosis in children before pronounced symptoms have developed and are anxious that measures for securing the early detection of the disease in children should be adopted

"The Committee are of opinion that additional provision is required for the treatment of children suffering from the disease, including cases of pulmonary tuberculosis, tuberculosis in the bones and joints and glandular and other forms of tuberculosis.

"In addition to the provision of treatment at sanatoria and hospitals for tuberculous children mentioned in the interim report, there is urgent need for a wide application of the principle of open-air treatment and education by means of open-air schools (day and residential), open-air classes, &c. Such institutions should deal not only with tuberculous children, but also with the large number of children who are suffering from ailments which, if

neglected, would be likely to increase their susceptibility to tuberculosis. It is also desirable that these institutions should be utilised, as far as possible, to teach the advisability of the adoption of a practically open-air life in the homes of the children."

Non-pulmonary Tuberculosis.—"The Committee observe that the Local Government Board, acting under the powers conferred upon them by the Public Health Act, 1875, the Public Health (London) Act, 1891 and the Public Health Act, 1896, have issued regulations making it compulsory to notify cases of tuberculosis of all kinds and repealing the regulations of 1911 under which only pulmonary tuberculosis was notifiable. They understand that the issue of similar regulations is now under consideration by the Local Government Board for Scotland.

"It had been the intention of the Committee to recommend the compulsory notification of all cases which had been diagnosed by clinical methods and they are glad to find that they have been anticipated by the action of the Local Government Board and that it is no longer necessary to make this recommendation.

"The regulations provide for the notification by every medical practitioner within 48 hours after first becoming aware that a person on whom he is attending is suffering from tuberculosis and for weekly notification by School Medical Inspectors and by medical officers of poor-law institutions and sanatoria. A medical practitioner is deemed to have become aware that a person is suffering from tuberculosis when he has arrived at this conclusion from evidence other than that derived solely from tuberculin tests applied to that person.

"The powers and duties of sanitary authorities and their officers on receipt of notification are expressed in the same terms as those contained in the regulations of 1911. These latter regulations were referred to and the powers and duties in question were set out in the interim report.

"The Committee are of opinion that this step will be of material assistance in the prevention of tuberculosis, particularly if sanitary authorities and their officers make effective use of the powers conferred upon them."

The remarks of the several District Medical Officers of Health on this subject are of marked interest.

CONGLETON MUNICIPAL BOROUGH.—"Early in the year, through the Public Health (Tuberculosis) Regulations, 1911, coming into force on 1st January, a large proportion of the 31

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cases were notified, many of them old, chronic, hopeless cases, that had been going on for years; some of them in a dying state when notified, some actually dead before the notifications were received and others within a few days before they could be visited. All the houses were visited by the Medical Officer of Health and most of them several times in the course of the year and advice was given as to hygienic treatment and leaflets left where that was found to be necessary or advisable. All the particulars of the cases were ascertained and recorded in accordance with the instructions of the Local Government Board and in the event of a death the houses were disinfected. In several instances it was found the patients were living under satisfactory hygienic conditions and that they recognised the advantages of plenty of fresh air, the desirability of keeping the windows open and of disinfecting and destroying expectoration and some of them seemed to have improved or to be recovering. In other instances and these were more numerous, where the patient was an inmate of a small cottage house with a considerable family, with whom he had to occupy a small sitting room during the day and could not have a separate bedroom and sometimes not a separate bed, the course was surely, if slowly, downwards and evidently could only end in one way. The only hope for such cases is their removal to a Sanatorium or some such place, where many of them would undoubtedly improve and, perhaps, recover and their being sent there would, at the same time, remove the serious risk of other members of the family becoming infected, but up to this time sanatoria are not available for their reception. It is only very rarely that the yards of cottages are sufficiently large or suitable in other respects for the erection of shelters even were they available. It may be going too far, but not much too far, to say that the recovery of a person with pulmonary tuberculosis in one of the poorer working-men's cottages, with a fairly large family, is next to impossible, whatever treatment may be resorted to."

CITY OF LONDON MUNICIPAL BOROUGH.—"It will be noted that in a large proportion of the cases the illness was of long standing; in 64 per cent. it had lasted more than one year.

"Among 49 per cent. of the patients it was found that another member of the family occupied the same bed and the necessity for some other sleeping arrangements to be made was pointed out in each instance.

"The question of open-windows in the home where pulmonary tuberculosis exists is a vital one in the interests of both patients and relatives and the extent to which the practice was

discovered is a source of satisfaction. Further, it is an indication that the correct method of dealing with the disease in the home is more generally understood than formerly. In this connection, I would like to point that to make it physically possible to sleep with open windows in cold winter weather, thought must be given to the quantity of clothing on the bed. Efficient open-air treatment is only practicable when plenty of extra bed clothes are used. The lack of forethought in this direction is a frequent cause of the patient's alleged inability to sleep with open windows.

"The comparatively short time which elapsed in a number of the cases between the receipt of the notification and the patient's death rendered it impossible to carry out proper precautions in the care of the sputum at an early enough stage of the disease.

"This difficulty will grow less when compulsory notification has been longer in force, cases will be reported at an earlier stage of the disease by their medical attendants. As might be expected, a large proportion of old standing cases became known to the Public Health Department only after the 1911 Order was in operation.

"The number of deaths is four more than in 1911 and eight more than the average yearly number since 1874. Of the 38 deaths nine were 'transferable' ones from other districts and had not been notified in the borough. The case mortality among the cases notified in 1912 was 47 per cent., a high figure accounted for by the long duration of the disease among the cases reported under the 1911 Tuberculous Order.

"As an aid to the early detection of pulmonary tuberculosis, the Health Committee have for some years provided for the bacteriological examination of sputa. In 1912 the specimens examined and the results were:—

	No. Specimens.	RESULTS.	
		Positive.	Negative.
Municipal Laboratory...	48	19	27
Manchester ,, ...	5	1	6
	<hr/> 53	<hr/> 20	<hr/> 33

"After the adoption of voluntary notification, suitable cases were admitted for treatment into an empty ward at the Isolation Hospital. Early in 1909, however, an open-air revolving shelter to hold two beds was erected in the grounds. A stay in the

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shelter for some weeks serves a two-fold purpose : it improves the health of the patient and secondly, is a means of education in the methods calculated to prevent the spread of the disease. The proper disposal of sputum, the best means of combining rest and graduated exercise and the value of fresh air night and day are shown to the patients.

“The patients admitted to the shelter in each year have numbered :

In 1909, 7 ; in 1910, 6 ; in 1911, 8 ; in 1912, 7.

“The following are some details of the patients admitted during 1912 :—

1. F. Aged 24 years, housewife. Admitted April 25th, discharged June 8th. Weight on admission $94\frac{1}{2}$ lbs., ditto on discharge $102\frac{1}{2}$ lbs., gain 8 lbs. Much improved when re-visited.

2. F. Aged 30 years, housewife. Admitted May 13th, discharged June 8th. Weight on admission 90 lbs., ditto on discharge 92 lbs., gain 2 lbs. Much better when re-visited.

3. F. Aged 44 years, homework. Admitted June 22nd, discharged July 20th. Weight on admission $114\frac{1}{2}$ lbs., ditto on discharge 114 lbs., lost $\frac{1}{2}$ lb.

4. F. Aged 29 years, homework. Admitted June 25th, discharged June 26th. This patient declined to stay for treatment.

5. M. Aged 36 years, moulder. Admitted August 17th, discharged September 9th. Weight on admission 98 lbs., ditto on discharge 87 lbs., lost 11 lbs. Died September 24th (15 days after discharge).

6. M. Aged 29 years, earter. Admitted September 30th, discharged November 27th. Weight on admission 110 lbs., ditto on discharge 110 lbs. Much improved when re-visited.

7. M. Aged 30 years, labourer. Admitted December 5th. Weight on admission 91 lbs., ditto on December 30th $83\frac{1}{2}$ lbs., lost $7\frac{1}{2}$ lbs. Died on December 30th.

“Since 1911, cardboard sputum boxes have been supplied to notified cases for use at home, and 964 of these were distributed in 1912. The importance for purposes of prevention of the suitable collection and destruction of sputum cannot be emphasised too much ; especially in advanced cases, where much is expectorated, the utmost care is called for in the interests of both patient and

relations. Each patient admitted to the shelter is given a sputum flask on discharge, the proper use of which has been explained, and the method of dealing with the sputum practised while in hospital.

“The disinfection of the room in which a patient has died is systematically carried out when the consent of the relatives is obtained. It is satisfactory to find the public becoming more and more ready to adopt this precaution and to have all infected garments and bedding disinfected by steam. Empty infected houses are also disinfected.

“Inspection of dwellings is regularly carried out in all cases notified, and any conditions found prejudicial to the patient's welfare are remedied so far as is practicable. Advice as to precautionary measures is given systematically and the cases re-visited at regular intervals.

“The following bye-law is in force in the Borough :—

“No person shall spit on the floor, side, or wall of any public carriage, or of any public hall, public waiting-room, or place of public entertainment, whether admission thereto be obtained upon payment or not, within the Borough.

“1912 will stand out in days to come as the year in which the crusade against the “white plague” became a national one, for the “Sanatorium benefit” under the Insurance Act is the first national step in that direction. This, coupled with the notification of all cases of tuberculosis will, when fully organised and co-ordinated, go far towards eradicating the disease. To assist in the domiciliary treatment of cases of pulmonary tuberculosis, this Authority has undertaken to loan movable open-air shelters to the County Insurance Committee, and the existing shelter at the Isolation Hospital has been recognised by the Local Government Board for the treatment of suitable cases.

“It is unfortunate that a Borough the size of Crewe is not a separate unit for administrative purposes under this new legislation, for if such were the case, the establishment of a tuberculosis dispensary as described in my report last year would then form the starting point of the necessary preventive and curative work. Such work, when carried out in intimate relationship to the public health department affords the best defensive organisation against the inroads of this disease.”

DUKINFIELD MUNICIPAL BOROUGH.—“Tuberculosis is now added to the list of infectious diseases to be notified. This year,

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1912, for the first time, tuberculosis of all forms, not only pulmonary, has to be notified in the usual way as an infectious disease. In these cases the houses are inspected and disinfected and instructions are given to the occupants as well as to the infected persons.

"Pulmonary phthisis was responsible for 25 deaths and 12 more were due to other forms of tuberculosis, compared with 31 in 1911, 20 in 1910, 28 in 1909, 25 in 1908, 33 in 1907, 25 in 1906, 11 in 1905, 18 in 1904, 25 in 1903, 19 in 1902, 24 in 1901, and 23 in 1899.

"This is an undoubted infectious disease and, owing to improved hygienic condition, the death rate has considerably decreased in recent years.

DEATH RATE.

1851-1860	...	...	2.7
1861-1870	...	...	2.5
1871-1880	...	...	2.1
1881-1885	...	...	1.8
1885-1890	...	...	1.6

"The death rate for all forms of tuberculosis in 1912 in Dukinfield is 1.85."

HYDE MUNICIPAL BOROUGH.—"There were 33 deaths from pulmonary tuberculosis and ten from other forms of tuberculous diseases, during the year. The phthisis death-rate is equal to .98 per 1,000 and that from other forms of tuberculous disease to .29."

STALYBRIDGE MUNICIPAL BOROUGH.—"On and from January 1st, 1912, all cases of pulmonary tuberculosis became compulsorily notifiable, and during the year 88 notifications have been received—21 under the Public Health (Tuberculosis) Regulations, 1908; 17 under the Public Health (Tuberculosis in Hospitals) Regulations, 1911; and 50 under the Public Health (Tuberculosis) Regulations, 1911. These 88 notifications related to 76 affected persons, of whom 45 were males and 31 females.

"As regards their location in the Borough and the number of cases occurring at different ages, there were in

Wards :—Lancashire		Staley.	Dukinfield.	Millbrook.	
15		21	32	8	
And at					
Age: 1-5 yrs.	5-15 yrs.	15-25 yrs.	25-45 yrs.	45-65 yrs.	over 65 yrs.
1	4	18	32	20	1

“Upon receipt of the notification of a patient resident at the time in the Borough, the patient is visited and enquiries are made as to the patient's habits and occupation, the sanitary condition of the premises, the number of inmates and the possibility or impossibility of the patient's isolation in separate bed and bedroom. A leaflet of instructions is left for the observance of the patient and the others in the home and periodical disinfection of the premises by the Sanitary Authority is also advised.

“The deaths from pulmonary tuberculosis during the year show a marked diminution from those of recent years, as is seen from the following :—

Year :—			1912	1911	1910	1909	1908	1907
Number of Deaths	...		24	37	30	35	38	39
Death Rate	...	...	0.9	1.39	1.02	1.2	1.31	1.35

“Each week the sanitary inspector is furnished by me with a return of any deaths registered as due to pulmonary tuberculosis, so that he may visit and ask permission to disinfect the bedding and premises used by the sufferer and as a rule the friends are most willing to allow these precautions to be taken.

“On February 1st, 1913, all cases of tuberculosis, whether affecting the lungs or affecting any other organ of the body, will become compulsorily notifiable. Undoubtedly notification enables the Sanitary Authority to investigate to advise and to take such precautions as are at present suitable and available, but how incomplete and how frequently futile are those available precautions. The public cannot be too well nor too persistently informed of the importance of abundance of fresh air and wholesome food, which, after all, are the most potent influences in arresting and curing the disease, but until our food supply and especially our milk supply are robbed of their dangers, until the sufferer can be efficiently isolated and discharged cured, or until preventive medicine has revealed some serum or vaccine which may be relied upon to render contacts immune and to cure the sufferer, I fail to see what great advance we shall effect by having every case of tuberculosis notified.

“So far as Urban and Rural Districts and Non-County Boroughs are concerned, all powers for the provision of sanatoria, the establishment of dispensaries and the control of the domiciliary treatment of persons suffering from pulmonary tuberculosis are delegated to the County Councils. The County of Cheshire is as yet without a sanatorium ; the dispensary which is to serve for Hyde, Dukinfield and Stalybridge, is not yet established at Hyde,

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its suggested site ; and no instructions as to domiciliary treatment have been issued. The Local Authority may provide sputum flasks, paper pocket handkerchiefs and disinfectants, but it is for the County Council to provide shelters as part of the equipment of their dispensaries, while appeal for extra nutriment in necessitous cases is to be made to the Guardians.

“ It is evident that the benefits which will fall to the share of our Borough will not be such as to deal at all adequately with this vast problem of the extirpation of tuberculosis. Only very early cases—those in the first stage of the disease—will be eligible for admission to the sanatorium and for the present at any rate the advanced cases, with which all general practitioners are only too well acquainted, are to remain under their present unsatisfactory surroundings—nursed in the living place of an already overcrowded tenement and spreading the disease broadcast around them.

“ It is generally admitted that during recent years there has been an improvement in both the incidence of and the mortality from pulmonary tuberculosis. May I suggest that this improvement is not altogether due to the institution of the campaign against consumption, which I desire to see carried on with even greater vigour, but is largely due to greatly improved sanitary conditions of the homes, of the workplaces and of the factories, and to instruction of the public in habits of personal hygiene, in the advantage of the open window and in the importance of plain wholesome food.

“ Certainly as regards my own Borough I contend that these latter have been the more potent factors in bringing about an improvement. Never before was the Borough so sanitary, so well sewered, so well paved, nor so well supplied with an abundance of pure water as it is to-day. Much has been done during recent years, more remains to be done and must be done, in the near future to still further improve the Borough and I am convinced that if the money, which the State is now providing towards the establishment of sanatoria, was devoted to the abolition of slum and overcrowded dwellings and their replacement by modern dwellings in open situation, much more permanent good would result within the next 10 years than will accrue from all the treatment in sanatoria, from which the patients too often of necessity return to their former unhealthy surroundings and are then apt to grow careless as to the observance of the good habits into which they had been initiated.”

WALLASEY MUNICIPAL BOROUGH. — "The deaths from phthisis numbered 68, equal to a death-rate of 0.8 per 1,000 of the population, which is slightly lower than last year. It should be noted, however, that if the phthisis rate is taken as affording any indication of the healthiness of this particular district, it is a misleading figure, because as a matter of fact the good reputation of this district attracts people suffering from phthisis to come and live here in the hope of improving or curing their condition. Of the 67 deaths above referred to no fewer than eight occurred among people who had been resident in the place 12 months and under and who had come to the district specially for the sake of their health. Ten other deaths occurred amongst people similarly placed but who had been in the district two years and under. By the new system of transferring deaths, moreover, we have this year been credited with five deaths of which in former years we would never have heard. Excluding these 23, our rate per 1,000 of population would only be 0.5. Of the total number of deaths, nine died in the Workhouse Hospital.

"As a further indication that people suffering from phthisis are attracted to Wallasey, I may mention that of the 176 notifications received during the year, no fewer than 30 had come to reside within the Borough within the previous few months, having been attracted here or advised to come here because of their condition.

"An attempt is made to disinfect all premises where phthisis cases have occurred. This is done in every case after a fatal termination, but in the case of removals it is difficult. Although people are encouraged to notify the Local Authority in the event of their removal, very few do so and their departure from the infected house to infect another is only discovered when the routine visit is made. In many instances then the infected house is found occupied by another family and under these conditions it is very difficult to get the premises disinfected.

"The experiment entered into in 1911 with regard to the treatment of phthisis cases at Mill Lane Hospital, has been continued throughout the year, with very marked success in the majority of instances. 32 cases (including re-admissions) have been treated. It is early days to talk of cures and some of those admitted were more or less advanced cases, but even of these all went out much improved, while in 8 instances no signs of the disease could be detected on discharge."

ALSAGER URBAN DISTRICT.—"The Council has had printed leaflets, giving instructions as to aids to the home treatment of that disease and the prevention of its spread. Nine cases have

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been notified during the year ; these have been treated at home. All steps to prevent the spread of the disease have been taken, as far as possible, and the treatment persisted in. This largely consists in a plentiful supply of fresh air and good food, when the latter was obtainable. In case of death, the bedding is either disinfected or destroyed and the rooms disinfected. We have no shelters provided and no institution for sufferers from that disease."

ALTRINCHAM URBAN DISTRICT.—"The number of cases notified was 62 and the number of deaths 31.

"The action taken in these cases includes the disinfection of houses and effects by the Council, cards of advice provided for households invaded by this disease and attention is directed to the surrounding influences. So far no definite scheme has been furnished by the County Council as to institutional treatment and cases have been dealt with, as far as possible, through the agency of the Manchester Consumption Hospital and the Crossley Sanatorium at Delamere."

ASHTON-UPON-MERSEY URBAN DISTRICT.—"The question of tuberculosis is now before the County Council and the Bucklow Hundred of Cheshire ; the cases are chiefly under the treatment of the tuberculous hospitals in Manchester."

HIGHER BEBINGTON URBAN DISTRICT.—"Three of the four tuberculosis patients were the mother and two children belonging to one family. The woman had been treated in a sanatorium, but from visits to her home I was able to determine that she had failed to grasp any of the principles of open-air treatment and the infectivity of tuberculosis was quite beyond her comprehension. She could not be prevailed upon to allow the removal of her children to better surroundings and the case exemplifies the need for powers to compel removal and the retention of careless consumptives in institutions until they can learn to avoid the danger of spreading infection."

LOWER BEBINGTON URBAN DISTRICT.—"Eighteen notifications of pulmonary tuberculosis were received. Four patients received treatment in the Poor Law Sanatorium at Clatterbridge and several others were treated in private sanatoria. I hope at no distant date to be able to announce to you that the County Council is providing a sanatorium for the County of Cheshire, to which every suitable case will obtain admission."

BREDBURY AND ROMILEY URBAN DISTRICT.—“Under the Public Health (Tuberculosis) Regulations, 1911, notification of 19 cases of phthisis have reached me during the year, and I have personally visited and inquired into each, giving advice where necessary, and a card of hints and instructions where acceptable. Full particulars have been entered in the register kept purposely for these cases. Fourteen of the patients are living, and under treatment. Three of these have been sent to the Stepping Hill Infirmary, Stockport, and three others have gone to private sanatoriums. Ten of the nineteen patients may be classed as visitors to this district, where they have taken up their residence for the sake of the country air and surroundings. Disinfection of rooms, &c., is carried out, as in other infectious diseases wherever required. The death-rate from phthisis was .678, and for all other tuberculous diseases .452 per 1,000 per annum.”

CHEADLE AND GATLEY URBAN DISTRICT.—“Nine deaths were registered as due to phthisis and other tuberculous diseases. Of these one occurred at the Barnes Convalescent Hospital and one at the Royal Lunatic Hospital. One transferable death belonging to the district was registered as due to tuberculous disease. The general death-rate per 1,000 persons living per annum (estimated population, 10,620) is 0.84, as compared with 1.36 in 1911, and the total death-rate for the nett deaths belonging to the district (estimated population, 9,645) is 0.81, as compared with in 1911 for the general death-rate 1.36; and for the district proper 1.29.

“Of the nine deaths registered in the district:—

7	were registered as due to pulmonary tuberculosis.
1	was ,, ,, tubercular meningitis.
1	” ,, ,, tubercular laryngitis.

“As I have many times remarked in my previous annual reports, the death-rate from phthisis and other tuberculous diseases would be still lower if patients did not come to the district from the neighbouring towns in the last stages of the disease to reside here with the hope of receiving benefit from a purer atmosphere.

“On January 1st, 1912, the Local Government Board Order came into force, which requires every medical practitioner to notify every case of pulmonary tuberculosis occurring in the course of his private or public practice. Twenty-two notifications were received, of which two came under the Hospital Order and one under the Poor Law Order.

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"Nineteen were notified by medical practitioners and of these notifications two were duplicates, making in all 20 cases notified. On making enquiries into these cases, I ascertained that in nine cases there was a history of phthisis in the family, and five cases had previously been in either Delamere Sanatorium or Bowdon Hospital. In three cases the patients had become infected by nursing either relatives or friends, and in three cases influenza was thought to have been the exciting cause, and in two cases the disease started after confinement. In one case, owing to the generosity of a friend, a shelter has been provided. Nothing is provided by your Council in these cases. In each case enquiries have been made and when necessary a card of instructions has been given as to matters of living and ventilation."

COMPSTALL URBAN DISTRICT.—"Since the Tuberculosis Act came into force, one case of pulmonary tuberculosis was reported in March. The premises were inspected and the patient instructed as to home treatment, such as food, air and clothing. Also with regard to sputum and cleanliness. I frequently inspected the premises during patient's illness and found them carrying out instructions to the best of their ability. The disease, however, was far advanced and the patient died in August.

"The room was stripped and disinfected. The bed linen was partly destroyed and partly disinfected. There was no dispensary or other institutional treatment."

ELLESMERE PORT AND WHITBY URBAN DISTRICT.—"Fifteen persons from Ellesmere Port died from tuberculous diseases in 1912. Six died from tubercle of the lungs, six from tubercle of the coverings of the brain, and three from tubercle of other organs. In 1911 there were 12 deaths from the same cause, and the number in 1910 was 14.

"Notifications were received in 27 new cases, 17 of which received treatment in the Poor Law Sanatorium. Institutional treatment will be provided by the County Authority at an early date, but at the present time the only provision available is a number of beds rented in already established sanatoria in different parts of the country."

"The following handbills have been freely circulated in the district :—

FRESH AIR AND VENTILATION.

Fresh air is necessary to health and can be had for nothing.
Fresh air in our rooms and houses helps us to keep off disease.

Consumption, anæmia, headache, want of energy, are found in people who live in stuffy, closed up rooms.

The air breathed out by human beings and animals is hurtful.

This foul air is given out when sleeping as well as waking.

The air from gas-burners and candles is also hurtful.

We must get rid of all impure air from our rooms and houses.

Give disease germs a chance of getting away by leaving your windows open at the top.

THEREFORE

1. Windows in sleeping rooms should be open at the top all night.
2. Windows in living rooms should be open at the top all day.
3. In rooms in which people both live and sleep it is doubly necessary that the windows should *always* be open at the top.
4. The size of the opening can be regulated according to weather.
5. Keep the staircase windows open and flush your rooms with fresh air several times a day by opening wide the windows and doors of all rooms.

Troops find no difficulty in sleeping in the open ; children, taught in the open air, love it and grow strong on it ; consumptive people are cured by it. It is all a matter of habit. Get that habit and stick to it.

CLEANLINESS IN THE HOME.

Dust, Dirt and Disease follow each other.

Fresh Air, Sunshine and Cleanliness will keep them at bay.

Hot Water and Soap are Cheap.

THEREFORE

1. Wash the floors of bedrooms every week.
2. Wash the floors of living rooms frequently, especially where there are children ; and sweep them, with the window open every day.
3. Damp tea-leaves or damp sawdust will keep down the dust during sweeping.
4. Draw back the curtains and pull up the blinds so that air and sunshine may enter.

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5. Keep the corners and cupboards clean, also the woodwork and ledges where dust accumulates.
6. Keep even the staircase and passages clean. Give them a wash every week.
7. A good housewife is known by the cleanliness of her hearth, her doorstep, her scullery and her sink.
8. Get rid of all vegetable and animal refuse as soon as possible.
9. See that the closets, gullies and yard are cleansed every week.
10. Keep yourself and your children as clean and tidy as you can.
11. Train your children in cleanly habits and bathe them often ; it will make a great difference to the cleanliness of your beds and bedding.

It's all a bit of trouble at the time ; but it saves a deal
of trouble in the end.

HALE URBAN DISTRICT. — "Five deaths from tuberculous diseases were registered during the year. Of these three were from phthisis, one from tuberculous laryngitis, and one from tuberculous disease of the hip joint. During 1911 six deaths occurred from tuberculous diseases. The death-rate for phthisis for the year was .329 per 1,000 living, and for other tuberculous diseases .219, making a total of .548 ; compared with .7 for 1911. The death rates for the County for 1911 were respectively, phthisis .85, other tuberculous diseases .39, making a total of 1.24 per 1,000 living.

"As heretofore provision is made by the Council for the examination, free of charge, of sputa and discharges suspected of tubercle bacilli. Under this provision four specimens were submitted for examination, one of which was positive and three negative."

HAZEL GROVE AND BRAMHALL URBAN DISTRICT. — "Under the Tuberculosis Regulations, 1911, eight cases were reported ; each received special attention and instructions were given. Six died."

HOOLE URBAN DISTRICT. — "There were 14 cases of pulmonary tuberculosis, notified during the year, three of which cases died. The patients' houses were visited and re-visited, full particulars of each case were obtained and recorded, verbal advice as to general

management was given and a card of printed instructions left. Sputum flasks, paper handkerchiefs and disinfectants were also supplied. In the case of the three patients who died, the rooms were fumigated with formalin vapour and the bedding and all contaminated articles of clothing were destroyed. Notices also were served upon the owners to strip, lime-wash and repaper the bedroom walls and clean down the rest of the house, all of which notices were complied with. Two patients subsequently to notification were admitted to sanatoria for treatment and one to whom such treatment was offered refused it. In seven of the cases notified the diagnosis was confirmed by bacteriological examination of the sputum and in three other cases such examination was negative. No special sanatorium accommodation has been provided as yet by the Council, inasmuch as this matter is being taken up by the County Council. The only accommodation in the district for the hospital treatment of cases is in the Chester Union Hospital, where there are two wards set aside for that purpose, one for males and the other for females and two day rooms. There were four deaths from pulmonary tuberculosis in Hoole proper and 12 in the Chester Union Hospital were certified as due to that disease."

HOYLAKE AND WEST KIRBY URBAN DISTRICT.—"The district has a reputation all over England as one in which pulmonary affections are relieved or cured. The result is that 46 notifications of pulmonary tuberculosis were received. Some of the persons notified had been inmates of sanatoria, and came to West Kirby and Hoylake to continue treatment under the care of local medical men. Seven were children undergoing open-air treatment at the West Kirby Convalescent Home. On the death of the mother, three children in one family were found infected and removed to the Clatterbridge Sanatorium. In another instance, a mother and daughter both died from pulmonary tuberculosis after removing from Liverpool to Hoylake, in an attempt to lead a more open-air existence."

KNUTSFORD URBAN DISTRICT.—"Four cases were known to me from the old list of voluntary notifications and 13 were notified during 1912. Three died, two left, and one is in the workhouse, so there are 11 now on my list for regular supervision. As stated before, I have conscientiously considered that this work devolved upon myself and I have (equally conscientiously) carried it out personally. I have made no search for unrecognised cases. There are no tuberculosis officers or health visitors. No sanatorium, hospital, dispensary, or other institutional treatment has been available."

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LYMM URBAN DISTRICT.—“During 1912 there have been 18 cases notified of tuberculosis of the lungs in residents of our district, including one death. There was also a death from this cause in a non-resident who died in the district. Considering this disease from the point of view of prevention we have in this district :—

“Notification, which includes naturally previous diagnosis. To this end we may send down sputum for bacterial examination to the Manchester University and for suitable patients the Manchester Infirmary and Chest Hospital make tuberculin tests, &c. Patients have, when treated at home, the sole occupation of one room, where possible, the usual information as to sputum, coughing &c. is imparted to them and disinfectants are supplied on application. Should a change of tenancy be made in a house occupied by a tubercular patient, or a death occur, the house is disinfected.

“As far as isolation is concerned in sanatorium or hospital we are still where we were last year (1911), but at a meeting at Crewe, held in 1912, we expressed our willingness to adopt the county as our unit in this matter and to fall in line with the scheme then brought forward by the County Medical Officer. In the interim we have to return our sincere thanks for favours on the part of the Delamere and Bowdon Sanatoria. I should like to say here, that amongst the poor sanatoria and hospitals are quite as important from an isolation and preventive as from a treatment point of view if we seriously accept tuberculosis as an infective disease and it is not always possible to find a suitable room, or indeed a room at all, in a workingman's cottage for the sole occupation of the tubercular member of the family, parent or child.”

MOTTRAM URBAN DISTRICT.—“Five cases have been reported. I should like to point out that these were all chronic cases, with one exception, *i.e.*, cases which were recognised before January 1st, 1912—furthermore, one case came from a sanatorium in the South to stay with friends. Two cases were notified in Mottram and three in Broadbottom. As regards the Mottram cases, one terminated fatally and the other is in a sanatorium at Bowdon. He was sent there by his employers, as there was no bed available for patients under the Insurance Act.

“The Broadbottom cases: One case was removed to the Union Hospital, Ashton; another went to her home near Leominster and one terminated fatally with friends at Cleethorpes.

"Where cases of pulmonary tuberculosis are met, strict instructions are given to the relatives as to the proper methods of nursing and means of preventing spread of the disease. I supply forms issued by the Cheshire County Council.

"New regulations regarding tuberculosis have been issued and came into force on February 1st, 1913. These regulations apply to non-pulmonary as well as to pulmonary tuberculosis. More than half the deaths from non-pulmonary tuberculosis are of children under five years of age and it is probable that a much higher percentage of the total number of persons suffering from non-pulmonary tuberculosis are children of this age. It is hoped that notification of their cases will facilitate the investigation of sources of infection and assist in securing improvement in the conditions under which the children live.

"All cases, therefore, of tuberculosis must be notified to the Medical Officer of Health for the district with as little delay as possible."

NANTWICH URBAN DISTRICT.—"Nine notifications were received ; divided into sexes and age groups they are as follows :—

Age	Male.	Female.	Deaths.
15-25 years		2	
25-45 ,,	1	4	2
45-65 ,,	2		2
65 and upwards			
	—	—	—
	3	6	Total 9.
	—	—	—
			4 (Total)

"The Medical Officer of Nantwich has at his disposal for dealing with this disease, the following :—

- (1) Compulsory notification.
- (2) Sanitary Inspector to investigate the notified cases.
- (3) The provision of sputum cups and fluid disinfectants supplied free of charge.
- (4) The examination of sputum for tubercle bacilli in the Public Health Laboratory, Victoria University of Manchester, for which the Council pay.
- (5) Disinfection of infected houses and bedding.
- (6) Distribution of printed instructions.

PULMONARY TUBERCULOSIS.

NESTON AND PARKGATE URBAN DISTRICT.—“15 cases of pulmonary tuberculosis were notified. Several of these were persons going about their ordinary daily work, in relation to whom no confirmatory evidence of the existence of tuberculosis was received; they were merely individuals whose health was not good and in whom, at their consultations with their medical advisers, suspicious symptoms were detected. Six of the notified cases underwent treatment in a poor law or private sanatorium. There were four deaths out of the 15 cases notified and in three of these the disease was known to be of very long standing.

“The Liverpool Sanatorium, at Delamere Forest, is utilised by selected cases of tuberculosis. Free tickets and also others at a small monthly payment are in the possession of your Medical Officer for distribution, through the kindness of a philanthropic lady who lives in this district. There are several persons who received treatment at Delamere as long ago as 1905 who are well and doing their ordinary work.”

NORTHWICH URBAN DISTRICT.—“Of this disease there were 34 notifications received and 15 deaths were registered from it. All the cases notified have been visited by the lady health visitor and such isolation provided as was practicable; destruction of sputum advised, with open air, separate room, &c., if possible.

“In almost all cases the notifying practitioners have voluntarily undertaken the advising of patients on these lines at the request of the Medical Officer of Health.

“Owing to overcrowding it is often impossible to get a separate bedroom for the patient.

“There is no sanatorium provision made at present but the County Council appear to have a scheme under consideration.

“A supply of leaflets, sputum flushes and paper handkerchiefs are on order and the cases are visited by the health visitor.”

SALE URBAN DISTRICT.—“There were 37 cases reported and the number seems large but this is owing to the medical men being required to report their cases confidentially to the Medical Officer of Health. Now that the Insurance Act is in force, tuberculosis cases will get a better chance of early treatment by sanatoria, etc.

“The houses in which cases existed were visited and instructions given as to ventilation, destruction of sputum and avoidance of contact with sound members. Where a death took place, disinfection was thoroughly carried out.”

SANDBACH URBAN DISTRICT.—“There has been one death from phthisis in the district. The poor in receipt of relief are sent to Arclid Infirmary, where I instruct, feed, and treat them on the proper lines and the other than poor are treated at home; but now we hope to be able to send all these cases to sanatoria when suitable accommodation is provided for them.

“All the existing cases are visited regularly, disinfectants are supplied, instructions are given and no doubt great benefit will be derived from them, both by the patient and the others in the same house.

SOUTH WEST CHESHIRE.—“The Public Health (Tuberculosis) Regulations, 1911, came into operation on January 1st, 1912 and provide for the compulsory notification by the medical practitioner of all cases of pulmonary tuberculosis, provided that the medical practitioner need not notify any case of pulmonary tuberculosis that has been previously notified under the Poor Law Regulations, 1908, or under the Hospital Regulations, May, 1911.

“On receipt of the notification the home of the patient is visited and enquiries made into the condition of the house, sanitary arrangements, sleeping accommodation, ventilation, dampness, &c., a card of instructions is left, together with a sputum cup and disinfectant and the house is disinfected every three months if the patient is treated at home, or after the patient is removed or dies, strict injunctions are left with each patient to sleep alone with windows open, use separate utensils for food and to burn all sputum.”

WILMSLOW URBAN DISTRICT.—“One case of pulmonary tuberculosis was notified under the Regulations of 1908 (cases in Poor Law Institutions or under care of District Medical Officer), one under Tuberculosis in Hospitals Regulations of 1911, one by Medical Inspector of Schools and eleven by medical practitioners.

“The houses were visited, printed advice distributed and disinfection carried out where necessary. Enquiries were made as to the existence of earlier unrecognised cases in association with the notified cases.

“One case was treated at the Bucklow Union Workhouse Hospital and one or two others as out-patients at the Manchester Consumption Hospital.”

WINSFORD URBAN DISTRICT.—“One case was previously known under voluntary notification and 15 cases were notified in 1912; total 16. As previously stated in this report I have done

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all the consequent work myself, in an endeavour to preserve the confidential nature of the information received, according to the instructions of the Local Government Board ; but the work has been so onerous that if it be found on report (as I fully expect it will be) that in the majority of districts the ordinary inspectors have been employed, I shall expect fresh instructions from the Local Government Board, or necessarily I must modify my own procedure. Of the cases enumerated, two left the district and no less than seven died, so only seven remain on the register. This is a very small number in a population of 10,000. Disinfectants were freely supplied as required and instructions given to patients and relatives both verbally and by cards. The existence of unrecognised cases was not inquired into, reliance being placed on notification by the local medical men. There are no tuberculosis officers or health visitors. There has been no sanatorium, hospital, dispensary, or other institutional treatment available."

BUCKLOW RURAL DISTRICT.—"The cases I have had to deal with are as follows :—

District.	No. of Cases.			Dead.	Left District.	Not requiring visits.	On list for Super-vision.
	Previous Voluntary Notifica-tions.	Notified in 1912.	Total.				
Bucklow R.D.	3	32	35	6	6	2	21

"Here is evidence of many years' previous work by voluntary notification. The small number of surviving cases in that list is proof that cases formerly were, in general, not notified until moribund. The heavy case mortality (25 per cent.) commands attention. One Bucklow case, marked as left, afterwards died in Knutsford, but is not again entered in the Table. The population of the Districts totals 45,812. The case-rate therefore is 1.8 per thousand, which will probably be found to be comparatively a low figure.

"Three cases have been exempted from inspection, owing to their social position, ample housing accommodation and adequate medical and nursing arrangements. One case, in a very inaccessible place, was visited by deputy. Five died so closely after notification (mainly in the early part of the year before I had settled my scheme of work), that they were not visited. The remainder have all been visited by myself, generally alone, but in a few cases accompanied by the Inspector and nearly all have been revisited during the year one or more times according to their importance.

"With very few exceptions, the accommodation at the respective houses permits of a separate bed and bedroom for the patient. Every case, without exception, is receiving medical attention. Disinfectants are supplied free by the Councils. It has not been found necessary, so far, to provide shelters, sputum-flasks, &c.

"198 notifications were received from the Manchester Consumption Hospital, which stands in Dunham Massey (within a few yards of the Altrincham U.D. boundary). These had all been previously notified in Manchester, at the out-patient department and had no residential connection with the Bucklow R.D.; but by the strict letter of the (Hospitals) Regulations, it was possible for them to be sent to me and it caused me an enormous amount of useless work to deal with them further, besides the waste of money paid in fees. An emphatic complaint was made to the L.G.B. and in the Regulations now in force these anomalies are corrected. No further reference will be made to these notifications.

"Four cases of indoor domestic servants and one case of a farm labourer, were noted, where notification, which came to the knowledge of the employers, was followed by instant dismissal from service. This is contrary to the intentions of the Order and points to the inadvisability of such cases being visited by either an inspector or even a health visitor. It is clear to me that a medical man is the only proper person to inspect.

"One girl, being notified from a hospital in a neighbouring town and losing her place, came to reside in one of my districts. A fortnight after she had gone back to service in the same town, but refused to give her address, remarking that 'it would be a long time before she went near a hospital or a doctor again.'"

"Several of the cases remaining on my list claim to be convalescent. They will be watched during the coming year.

"In order to acquire the facts for this report, I have had to spend many days in travelling many miles and many hours in clerical work. The amount is inconceivable if not experienced.

"Thirty-two notifications were received and three were brought forward from a previous voluntary list. One was outside the district six died and five left. Nine cases are considered to be convalescent. This left 14 on the list for general supervision. Their distribution is as follows :—Timperley five, Dunham Massey

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three and one each in Northenden, Baguley, Mobberley, Tabley Inferior, Tabley Superior and Warburton. Twenty-two townships thus have no cases at all and nowhere is there any aggregation of cases. The number of deaths in the last eight years has never exceeded 15 in a year and the average is only 12.5. All enquiries have been made by myself; the action taken has included supply of disinfectants, distribution of cards of instructions and verbal advice. Nothing was done to find unrecognised cases. There is, so far, no County scheme. Two cases obtained admission to sanatoriums through private arrangements. The action now being taken promises to stamp out this disease within a few years so far as the Bucklow Rural District is concerned."

CONGLETON RURAL DISTRICT.—"Compulsory notification was put in force in this district last year and on receipt of the notification I visited every case myself and every precaution was taken to avoid any publicity for the sake of the patient, but at the same time every care was taken to prevent the dissemination of the disease. I do not allow any milking to be done by a phthisical patient or any contact with milk which is for public use and so far there has been no trouble in getting this order carried out. Sputum flasks are provided by the Council and a pamphlet containing instructions as to the destruction of the sputum and the mode of life of the patient.

"The Council have authorized me to provide a hut for the patient to live and sleep in where there is not proper accommodation, such as a separate bedroom, or small and unhealthy living rooms. This I have done; the hut costs about £15 including a bedstead and stove and I believe this to be the best and most economical way of treating a phthisical patient where sanatorium treatment is not available. The patient and friends for which I obtained this hut were very grateful and carried out my instructions most faithfully and the medical man in attendance was quite satisfied with what was done. The hut was fixed in the back garden away from the dust of the road and did not take up much room. Fourteen cases were notified."

MACCLESFIELD RURAL DISTRICT.—"On 1st January, 1912, the compulsory notification of pulmonary tuberculosis became operative, and during the year 14 cases of this disease were notified. In each case investigation was carried out, and instructions written and verbal were given as to the means to be used to prevent the spread of the infection. I found in several instances considerable reluctance on the part of the patients and the relatives to give information, and in these cases I have obtained the necessary

details from the medical attendant. This opposition I have no doubt will soon pass away when it is realised that no disability attaches to patients suffering from this disease or interference with their means of livelihood. Four of the cases notified are in natives of other districts, who have been advised to reside in the country on account of their condition.

“No institutional treatment is at present available within the district for cases of pulmonary tuberculosis, who have therefore to rely entirely upon provisions made within or near their own homes.”

NANTWICH RURAL DISTRICT.—“Eighteen deaths were ascribed to pulmonary tuberculosis (consumption of the lungs). This is equivalent to a death-rate of 0.7 per 1,000 living at all ages. The rates for the preceding ten years were:—0.6, 0.38, 0.3, 0.6, 0.8, 0.7, 0.3, 0.5, 0.49, and 0.6. It will be seen that the rate is somewhat near the average of the preceding ten years. The rate is low, but not low enough to be incapable of improvement. To lower this rate it is necessary to treat the early cases of the disease, amongst the poorer classes, in a Sanatorium, in the hope of, and with good prospect of, curing them, and to treat the advanced and dying cases in Hospitals specially provided for that class of case, so as to prevent them from spreading the disease to others.

“The means of isolation in an ordinary workman’s dwelling are totally inadequate as a rule to prevent the spread of infection to the healthy members of the family. It is well known that when a person becomes extremely weak it is impossible for him to take that care with regard to his expectoration which he should do if the infection of others is to be avoided.

“Thirty-four cases of this disease were notified during the year. Of these persons eighteen died during the year. It appears to me that this proportion of deaths is a very high one and to my mind it shows that notification of the early cases is, for one reason or another, neglected, though, of course, I am not able to prove this.

“Each case has been carefully investigated. In all cases careful printed and verbal instructions have been given, and to each case a pocket spittoon, a bedroom spit-cup and a supply of disinfectant have been handed. In most cases I have been able to arrange for the sufferer to occupy a separate bed-room, but in some cases this has been impossible, an arrangement which is highly dangerous. It is on this account that I think it so

PULMONARY TUBERCULOSIS—OTHER TUBERCULAR DISEASES.

highly necessary to provide institutional treatment for cases of consumption among the poor.

“The administration of the Tuberculosis Orders is one requiring great delicacy if the giving of offence must be avoided. I have received every courtesy from the medical attendants of the sufferers and have only one complaint to make, and that is that in a number of cases, where notification has been made to me, I have found, on visiting the case, that the patient had not been informed of the nature of his complaint. I do not think it right that I, as a public officer, should have thrown upon me the onus of announcing to a patient the fact that he is suffering from consumption.

“A few movable shelters for use of patients would be of great advantage. These the Council has power to supply.”

Other Tubercular Diseases.

In this group one includes tuberculosis affecting the lymphatic glands, bones, meninges or covering membrane of the brain, the peritoneum or lining membrane of the abdominal cavity and tuberculosis of general systematic distribution. Tuberculous meningitis is scheduled in a separate column and is responsible for 99 deaths out of this total. Excluding tuberculous meningitis, there were during 1912 131 deaths ascribed to one or other of the above-named diseases, a number equivalent to a death-rate of 0.19 per thousand persons living. This is exactly half of the rate recorded for 1911 and shews a distinct decrease on the figures for previous years, for in 1909 the rate was 0.42, in 1908 it was 0.47, in 1907 it was 0.46 and in 1906 it was 0.47.

It is a matter for regret that only a very few of the District Medical Officers of Health offer any comment on this group of diseases, for it is one on which we have still a great deal to learn. Information is distinctly required as to the age of onset of these various conditions, the length of time during which they cause incapacity, their relative fatality and so on. For Education Authorities, Insurance Committees and those Councils who wish to carry out the treatment of children suffering from these conditions, all information of this character would be most valuable.

CREWE MUNICIPAL BOROUGH.—“Number of deaths, 21; Death-rate per 1,000, 0.46.”

The number of deaths registered from these diseases is two less than in 1911. The record for previous years is shewn below:

OTHER TUBERCULAR DISEASES.

	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912
Tubercular Meningitis	23	7	10	12	12	9	5	3	6	8	7	12
Abdominal Tuberculosis ...	18	13	18	20	16	5	14	6	7	11	7	7
Other forms ...	7	14	7	13	16	13	7	11	5	7	9	2
	48	34	35	45	44	27	26	20	18	26	23	21

“The sex distribution of the deaths was : Males 12, Females 9.

The age distribution was :

Years,	under 1	1—5	5—15	15—25	25 upwards
Deaths	2	8	9	—	2 ”

WALLASEY MUNICIPAL BOROUGH.—“Deaths from ‘other tuberculous diseases’ in Wallasey since 1901 :—

YEAR.	M	F	Under 1	1 to 5	5 to 15	15 to 25	25 to 65	65 and over
1901	7	2	2	2	1	1	3	...
1902	8	4	...	3	1	2	5	1
1903	10	7	6	3	2	2	4	...
1904	9	8	5	3	4	1	4	...
1905	7	6	3	4	2	1	3	...
1906	12	8	3	8	4	2	3	...
1907	27	8	11	6	6	3	8	1
1908	35		10	8	4	4	8	1
1909	34		13	13	...	6	2	...
1910	35		7	17	2	5	4	...
1911	13	19	6	13	4	1	6	2
1912	14	11	8	12	2	...	3	...

HALE URBAN DISTRICT.—“Five deaths from tuberculous diseases were registered during the year. Of these three were from phthisis, one from tuberculous laryngitis, and one from tuberculous disease of the hip joint. During 1911 six deaths occurred from tuberculous diseases.

“The death-rate for phthisis for the year was .329 per 1,000 living and for other tuberculous diseases .219, making a total of .548, compared with .7 for 1911. The death-rates for the County for 1911 were respectively, phthisis .85, other tuberculous diseases .39, making a total of 1.24 per 1,000 living.”

MOTTRAM-IN-LONGDENDALE URBAN DISTRICT.—“More than half the deaths from non-pulmonary tuberculosis are of children

OTHER TUBERCULAR DISEASES—CANCER AND MALIGNANT DISEASE.

under five years of age and it is probable that a much higher percentage of the total number of persons suffering from non-pulmonary tuberculosis are children of this age. It is hoped that notification of their cases will facilitate the investigation of sources of infection and assist in securing improvement in the conditions under which the children live."

NANTWICH RURAL DISTRICT.—"Four cases of tubercular meningitis and eight cases of abdominal, bone, and joint tuberculosis appeared in the mortality returns.

"It is impossible to say at present how many such cases are in existence in the district, but by the time this report is in the hands of the Council, all such cases will be notifiable under the new regulations of the Local Government Board.

"There is no doubt in my mind that many of these cases are derived from the ingestion of tuberculous milk and meat and that they are therefore of animal origin. The way to prevent them is to prevent tuberculous milk and meat from gaining access to the markets. I am hoping much from the action shortly to be taken by the Government to deal with the problem by slaughtering the infected animals and compensating their owners for their loss."

Cancer and Malignant Disease.

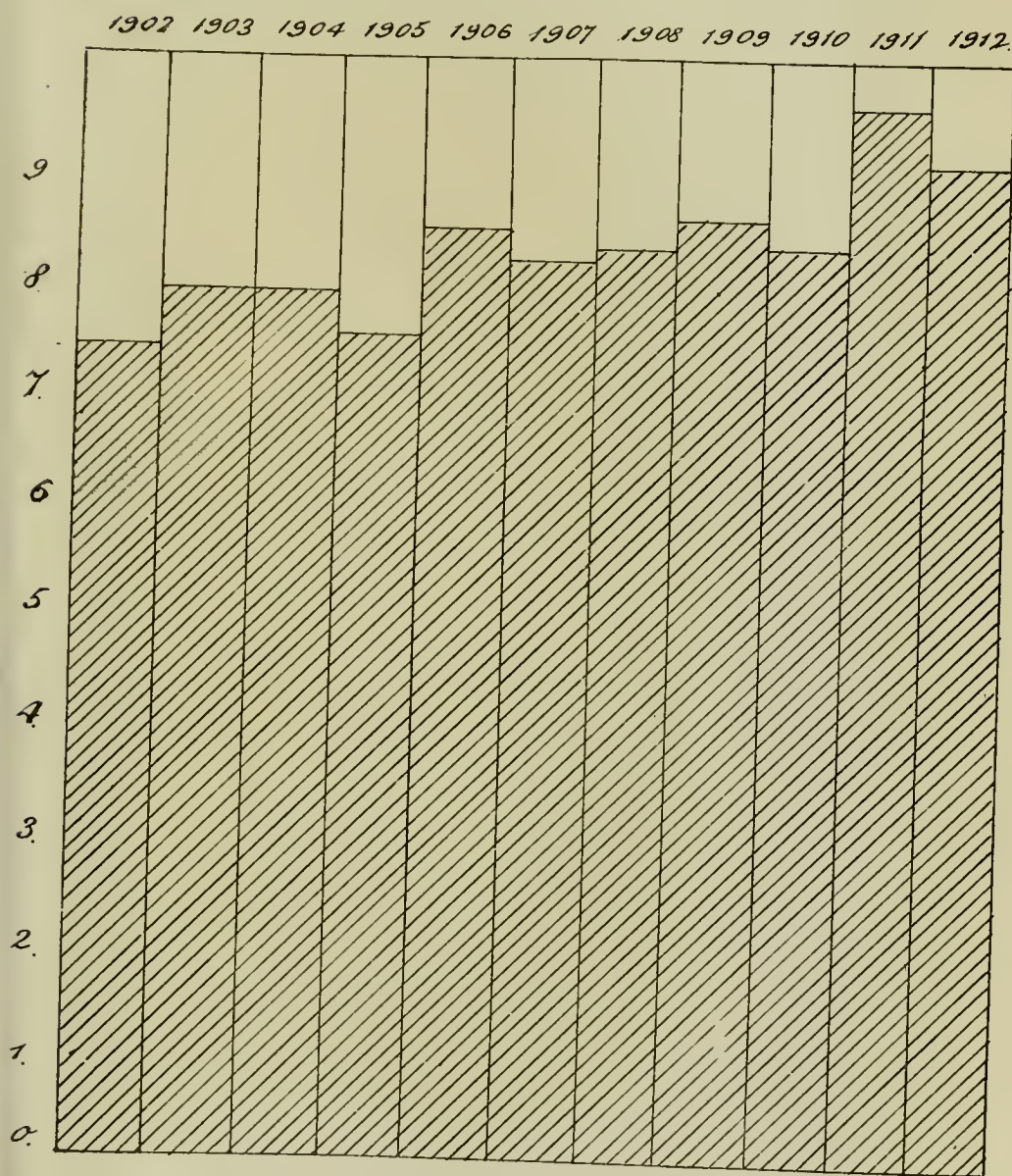
There were 636 deaths due to these various forms of disease during 1912—a number equal to 0.92 per thousand persons living.

The number of deaths varied from 241 in the seven Municipal Boroughs to 227 in the 35 other Urban Districts and 168 in the 12 Rural Districts. Statistics for this County are only available as far back as 1900. It is not possible to give what is termed the corrected cancer death-rate, *i.e.*, the proportion of deaths from cancer to persons aged 35 years and upwards (in which class of person about 95 per cent. of the total deaths occur). The deaths are therefore perforce expressed as a rate per thousand of the total estimated populations. The figures are as follows :—

DEATHS PER 1,000 OF THE ESTIMATED POPULATION.

Year.		Cheshire.		England and Wales.
1900	...	0.70	...	0.829
1901	...	0.90	...	0.842
1902	...	0.74	...	0.844

DEATH RATES FROM CANCER AND MALIGNANT DISEASE 1902-1912.



CANCER AND MALIGNANT DISEASE.

Year.		Cheshire.		England and Wales.
1903	...	0.79	...	0.872
1904	...	0.79	...	0.877
1905	...	0.77	...	0.885
1906	...	0.85	...	0.917
1907	...	0.83	...	0.909
1908	...	0.84	...	0.923
1909	...	0.86	...	0.952
1910	...	0.84	...	—
1911	...	0.96	...	—
1912	...	0.92	...	—

In the decennium 1891-1900 the death-rates in England and Wales from cancerous disease at all ages and in both sexes averaged 758 annually per million persons living, thus exceeding by nearly 26 per cent. the average death-rate in the preceding decennium. From the year 1851 down to the present time cancer has shown a steady and persistent increase. During the 40 years 1851-1900 the cancer death-rate amongst males has trebled and amongst females it has doubled. A large amount of this increase is due to the more frequent detection of cancer as the result of operation or of post-mortem examination—in other words to the more favourable opportunities for correct diagnosis available in recent years.

The Registrar General recommends that under the heading of cancer Medical Officers of Health should enter deaths from carcinoma, scirrhus, endothelioma, epithelioma, perithelioma, rodent ulcer, sarcoma, cancer, malignant disease, &c. and these should be further classified or assigned to *the part primarily affected*, or, if two or more organs are mentioned without the duration being given, to the one first stated.

It should be no difficult matter for Medical Officers to classify such deaths, *e.g.*, as due to cancer (1) of the buccal cavity, (2) stomach, liver, &c., (3) peritoneum, intestines and rectum, (4) female genital organs, (5) mammae, (6) skin, (7) various other organs, such as glands, kidney, larynx, pancreas, spleen, &c. and group separately such things as disseminated cancer, general carcinomatosis and sarcomatosis, multiple cancer, &c.

I can claim no real originality for the following remarks in connection with the control of malignant disease, though for some years impressed by the utterances of that late eminent surgeon Sir H. E. Butlin, who lived but for a short time to wear the garland of success he had so richly earned. I have been inspired

CANCER AND MALIGNANT DISEASE.

too by the excellent endeavours of Dr. Chas. P. Childe, of the Royal Portsmouth Hospital, whose book on "The Control of a Scourge" I can well recommend to all interested in this subject. The theme has been pursued with some success by Winter, of Königsberg, Von Dührssen, Bartsch, of Heidelberg and others in this country. That these well-named malignant diseases are not transmissible from person to person may virtually be taken for granted, for if they be infectious or contagious their infectivity is of such a feeble order that it may reasonably be called negligible. Cases which apparently bore out the theory of infection have time after time been shewn to be dependent on merely extraneous coincidence. In the Laboratories of the Imperial Cancer Research Fund, healthy mice have been kept in considerable numbers and for a considerable time in the same cages as cancerous mice without a single case of infection having occurred. Heredity too plays but a very unimportant part in its production according to the conclusions of Karl Pearson, based on the statistics of Hillier and Tritsch (2nd Report of Middlesex Hospital Cancer Research Hospital Laboratories). These points may all be set aside as of entirely secondary importance if one can but realise—and what is of transcendent importance induce the public to realise—that *cancer at its first onset is a purely local disease*. These few words contain the *password to success*. This compelling fact is borne out first by clinical evidence—by the absence of deterioration in health until the claws of the cancer have dug deeply into the organ affected or the surrounding tissues or until secondary foci of disease have begun to appear—by its unicentric origin and by its origination as the result of local irritation and at the spot irritated. It is borne out secondly by the experimental evidence of inoculation or transplantation. Dr. Bashford says "our observations on animals shew that malignant growths are always local in origin and of themselves produce no evident constitutional disturbance whatever. These facts are in full accord with accumulated clinical experience in man." It is borne out thirdly by surgical evidence—evidence which curiously enough was quite in the opposite direction a quarter of a century ago—and which shews that once localised cancer is *completely* removed, as it can be now, owing to Lister and the advancement of surgical handicraft and perhaps also soundly based surgical courage it does not recur. Finally it has been demonstrated by Handley and others, by the tracing of the cancer-cell in its deadly and insidious progress, that if unchecked it steals along on definite anatomical lines from centre to periphery with a march as certain as that from the cradle to the grave. This coupled with similar researches demonstrating the reproduction of the original cell in the cells of foreign tissues (secondary deposits) shew almost beyond the possibility of doubt that the

extension of cancer to alien parts is merely due to the colonisation of the off-spring of the original stock.

This must serve as the preface to what I feel it my duty to ask you as a Public Health Authority to share with me in preaching. I want these facts driving home to the public mind with the same concentrated strength as that with which I trust we have now succeeded in driving home the elemental facts about the causation of tuberculosis.

First and foremost I want to ensure that the public shall receive simple, forcible and repeated instruction about what the late Sir H. E. Butlin termed "*pre-cancerous conditions*." Whilst one has heard of those who gibe at the existence of the condition termed "*præ-phthisis*," I have never yet found anyone bold enough to deny the existence of pre-cancerous conditions.

In popular language these conditions consist of various signs and symptoms according to the part of the body affected occurring in persons of 30 years of age or upwards. A lump in the breast, slight irregular bleedings from the womb mistaken for the change of life, or at later years a return of what is natural, a wart or persistent sore on the lower lip, a pimple, wart or sore on the tongue, cheek or gums, or an alteration of the surface of the tongue so that it appears to have on it "little daubs of white paint" (Childe), persistent sores, lumps or warts on the skin, hoarseness and loss of voice persisting for longer than is accountable for by a mere cold or returning at frequent intervals, persistent pain and uneasiness after food with possible attacks of sickness and failing appetite accompanied by early loss of flesh and strength or persistently recurring colicky pains in the stomach, irregularity of the bowels, unaccustomed obstinate constipation or alternate constipation and diarrhœa, frequent desire for evacuation of the bowels with little result and possibly accompanied by the discharge of some blood and mucus (simulating hæmorrhoids or piles)—these are all as Dr. Childe terms them "danger signals" in the person of advanced age. Malignant disease engrafts itself upon innocent, persistent or chronic conditions in some at present mysterious manner. This medical men know but the public at present do not realise it sufficiently. If the person who is the subject of these signs and symptoms, but who does not actually suffer from them and therefore fails to bring them to the attention of some doctor who realises their import, but continues to hug them to his breast in secret, they will assuredly—nothing is more assured than this in this world of disease—end by gnawing out his vitals.

CANCER AND MALIGNANT DISEASE.

Therefore, as an officer concerned with preventive measures, I feel that it is a public duty to make these early pre-cancerous conditions known and din into the public the anti-cancerous propaganda. It would be well, I think, if this Committee would allow a leaflet of precautionary mcasures to be issued under their ægis to all District Medical Officers of Health for distribution in their several areas.

In one sense one is on favourable ground in a movement of this kind. One is concerned with the welfare of a section of the public of fairly advanced age which may reasonably be deemed susceptible of education, particularly when one considers the fact that the precautions are directed to the protection of their own lives and not merely the lives of their children or dependants. It may seem callous to mention the last item, but whilst recognising the deep concern of the many for their offspring and relatives, one cannot blink the fact that the exceptions (who may total many thousands taking the nation as a whole) will remain more or less indifferent to any baneful agency except those which directly threaten their own bodies.

It is perhaps not going too far to ask that some endeavour should be made to encourage the general medical practitioner in making an early diagnosis of malignant disease. In far too many cases he dreads the mentioning of the possibility of cancer to his patients and there are often good grounds for this. A positive diagnosis is not possible and he, cautions, waiting and watching for a little, though deep down in his mind he knows that such a course of action is fraught with danger. But on the other hand if he puts all the cards on the table and when asked for an opiunion of a growth feels he must point out the possible danger of malignancy, there is the risk that his patient will shrink from the knife into the arms of a quack who, with nothing to lose and everything to gain, adopts a bold counterirritant line of action with the succcssful dispersal of a growth which was never malignant and perhaps never would have been and the practitioner's reputation is damaged.

Local Authorities can come to the assistance of the practitioner in this matter by offering to giv him free facilities for pathological examination of material removed from suspected malignant growths. Many years ago I sent a few specimens of this kind for examination when Medical Officer of Health for Stockport—without the specific instructions of my Council I confess—and with the greatest gain to the attendant practitioner. Expenditure of this kind is perfectly legitimate and would, I am certain, be of immense utility in the early detection of this class of disease.

CANCER AND MALIGNANT DISEASE—ALCOHOLISM AND CIRRHOSIS OF THE LIVER—DISEASES AND ACCIDENTS OF PARTURITION.

The two things we have to drive home to the minds of the public are :—

1. The proved possibility of cure when the disease is recognised at such an early stage as to be capable of radical removal.
2. The terrible danger of waiting until even slightly marked discomfort or interference with bodily function has manifested itself.

The outlook is precisely the same as it is for pulmonary tuberculosis and I submit that your duties as a Public Health Committee in reference to the control of malignant disease are exactly on all fours with your duties in the case of that disease. I could debate at considerably greater length on this subject, but feel that I have said sufficient to ensure your co-operation in what I deem to be a Public Health measure of the greatest importance.

Alcoholism and Cirrhosis of the Liver.

There are 89 deaths ascribed to these causes of death, namely, 35 in the 7 Municipal Boroughs, 31 in the 35 other Urban Districts, and 23 in the 12 Rural Districts. As remarked in previous Reports, however, this is no criterion of the effects of alcoholism, for in the first place, the true cause of death is frequently not put on record and, secondly, alcohol taken immoderately exerts an effect on practically every organ of the human body, inducing or hastening death from many other causes than cirrhosis of the liver, besides rendering the alcoholic subject in particular much more prone to take infectious diseases and to develop diseases of the type known as arterio-sclerosis.

Diseases and Accidents of Parturition.

The deaths from this group of diseases amounted to 63 during 1912, an increase of four on the number recorded for the previous year. As previously remarked, one has here to consider not only the deaths but the number of women incapacitated for home and other duties by illness which in many cases might have been avoided by proper medical and hygienic treatment during pregnancy and confinement. In other words many a woman is rendered what has been termed a "gynæcological cripple" by the want of careful attendance at the time of childbirth.

PUERPERAL FEVER—APPENDICITIS AND ALLIED DISEASES—
VIOLENT DEATHS AND SUICIDES.

Puerperal Fever.

The deaths from this disease numbered 16 during the year in the Administrative County, the number of cases of the disease notified to District Medical Officers of Health being 27 during the same period. The fatality rate is thus seen to have been a distinctly high one, namely 59 per cent. Further allusion is made to this subject in the section dealing with the Midwives Act.

Appendicitis and Allied Diseases.

There have been 48 deaths ascribed to this group of diseases.

Comparisons with the records of previous years are not possible as the classification of causes of deaths were only altered last year and this group of diseases does not appear in records prior to 1911.

Violent Deaths and Suicides.

These have numbered 343, viz. :—282 deaths by violence and 61 suicides.

Section IV.—Infectious Diseases.

Table III. at the end of this Report shows the number and nature of the cases of infectious disease notified in the Administrative County during 1912 and the numbers of such cases removed to Isolation Hospitals for treatment. There were 4312 notifications received by the District Medical Officers of Health as follows :—

Small-pox	...	...	3
Diphtheria and Membranous Croup			794
Erysipelas	...	...	344
Scarlet Fever	...	...	1798
Typhus Fever	...	...	0
Typhoid Fever	...	...	155
Continued Fever	...	...	1
Puerperal Fever	...	...	27
Pulmonary Phthisis	...	...	1190

The Municipal Borough of Wallasey has suffered somewhat severely from infectious disease incidence during the year, having had a rather unusual prevalence of scarlet fever (307 cases) pulmonary tuberculosis (176 cases) and diphtheria (75 cases).

The Borough of Macclesfield comes next in actual numbers of cases of infectious disease, with a total of 418 notifications ; but having regard to the respective populations of Macclesfield and Wallasey, the former Borough is really in the unenviable position of heading the list of infectious disease incidence. This has been due to the very large number of cases of scarlet fever notified, viz., 289.

The Borough of Crewe has also suffered rather more than usual from scarlet fever, having had 127 of such cases notified. There were also 93 cases of diphtheria notified in this Borough. Amongst other districts where the incidence of infectious disease has been unusually high may be mentioned Altrincham Urban District with a total of 138 cases (48 of which were scarlet fever and 60 cases of tuberculosis), Bredbury and Romiley Urban District with a total of 88 cases (43 of which were scarlet fever), Cheadle and Gatley Urban District with 91 cases (41 of which were scarlet fever), Ellesmere Port and Whitby Urban District with 114 cases (52 of which were scarlet fever), Hoyle and West Kirby Urban District with 166 cases (92 of which were scarlet fever and 46 cases of tuberculosis), Northwich Urban District with 104 cases (47 of which were diphtheria and 34 cases of tuberculosis), Runcorn Urban District with 159 cases (50 of which were diphtheria and 34 cases of tuberculosis), Winsford Urban District with 104 cases (45 of which were diphtheria), Congleton Rural District with 111 cases (61 of which were diphtheria), Macclesfield Rural District with 109 cases (80 of which were scarlet fever due presumably to an extension of the outbreak of this disease occurring in the Borough of Macclesfield), Nantwich Rural District with 126 cases (diphtheria 35, scarlet fever 48 and tuberculosis 34), Northwich Rural District with 133 cases (diphtheria 34, scarlet fever 51 and tuberculosis 29), Runcorn Rural District with 129 cases (diphtheria 31, scarlet fever 31 and tuberculosis 42) and Wirral Rural District with 128 cases (diphtheria 29 and scarlet fever 68 cases).

No single case of typhus fever has been notified in the Administrative County and only three cases of small-pox.

Typhoid or enteric fever has only been seriously prevalent in three areas, viz. : Runcorn Urban District (23 cases), Winsford Urban District (16 cases) and Runcorn Rural District (11 cases).

The notification rate for pulmonary tuberculosis has been higher than the average in the Borough of Wallasey (176 cases), a matter which is explained by the Medical Officer of Health in the previous section of this report—the Urban District of

SMALL-POX.

Altrincham (60 cases), the Urban District of Hoylake and West Kirby (46 cases), the Urban Districts of Northwich (34 cases), Runcorn (34 cases) and Sale (37 cases) and in the Rural Districts of Runcorn (42 cases), Nantwich (34 cases), Northwich (29 cases) and Bucklow (32 cases).

Small-pox.

There were only three cases of this disease notified during the year, one each in the Borough of Wallasey and Congleton and one in the Sandbach Urban District.

I quote the remarks of the Medical Officers of Health concerned on this point.

CONGLETON MUNICIPAL BOROUGH.—"The case of this disease occurred in a man living in Wags Road, aged 25 and showing good primary vaccination scars. He was a labourer at an iron works in Staffordshire, and worked there to within three days of the eruption appearing. He had a rather severe attack of the discrete form of the disease and he was removed to the small-pox hospital immediately the nature of his illness was known and his house was thoroughly disinfected. The contacts in Congleton were his wife and two relatives living in other parts of the town, all of whom were re-vaccinated and kept under observation for more than two weeks. He had been in contact with many persons at the ironworks while probably in a state capable of communicating the disease and the case was notified to the Medical Officer of Health of the district where he worked. The source of infection was not traced, which is not remarkable as at the time, there were few, if any, known cases in England."

WALLASEY MUNICIPAL BOROUGH.—"There was one case of small-pox notified during the year. The infected person was a stevedore who had been working on a boat which had been bought by some Turkish firm and which was occupied by Turkish sailors who came overland. The actual infecting person was not discovered. Some of the sailors from the boat had returned to Turkey before the onset of the illness. These were not seen and it is possible that one of them was infected. Those that remained were in good health so far as could be ascertained. There was at the time no case in Liverpool or Birkenhead or any neighbouring district.

"The case was an exceedingly mild one. The patient had been vaccinated in infancy and was said to have been successfully re-vaccinated 11 years ago, but there was very little evidence of

this. The patient was re-vaccinated twice after the appearance of the eruption, but unsuccessfully. The usual precautions were taken with regard to re-vaccination of contacts and no further case occurred.

“I may repeat here what I stated in my last year's Report, that Wallasey, as a part of the port of Liverpool, is always liable to be infected with this disease. As an example, last year 36 people were kept under observation in this district who had been in contact with the disease on board ship. Small-pox is exceedingly prevalent at the present time in Eastern Europe and it is more than likely that the disease will invade this country sooner or later. Wallasey is, comparatively, a well-vaccinated place, but a general laxity with regard to this precaution has prevailed over England for some years and in some portions of the country the number of unvaccinated people greatly exceeds those vaccinated. An outbreak amongst this susceptible class would be exceedingly difficult to confine within moderate limits. There is but one preventive action against small-pox which is of any service whatever, namely, re-vaccination. Adults who neglect to take this precaution have only themselves to blame if they become infected and parents who neglect to take advantage of the opportunities offered them for the vaccination and re-vaccination of their children must accept the heavy responsibility which will burden them should any of such children become infected with a disease which is at once so loathsome and so easily prevented. In fact, small-pox is the only infectious disease which can really be said to be preventable. With regard to any other infectious disease any person casually in contact or in attendance runs great risk of becoming infected with the disease, whatever precautions he or she may take. Quite the reverse with small-pox. Given a recent successful re-vaccination, one can almost certainly guarantee that no contact or attendant will become infected; the risk is nil.

“During the year I was notified by the Medical Officers of the Port Sanitary Authorities concerned that 36 people had arrived in this district from infected ports. These people were all kept under observation, but none developed the disease.”

The Medical Officer of Health for Sandbach Urban District makes no comment on the case which occurred in that district.

Vaccination.

Only very few Medical Officers of Health make any special comment under this heading. I reproduce a few of their remarks and statistics :—

VACCINATION.

CREWE MUNICIPAL BOROUGH.—“The Medical Officer of Health furnishes the following returns which I have abbreviated so as to cover the last five years.

YEAR.	1908	1909	1910	1911	1912
Births registered ...	1174	1120	1112	1028	1012
Died unvaccinated ...	74	83	71	116	44
No. surviving Total	1100	1037	1041	912	968
Successfully vaccinated ...	706	623	581	538	553
Percentage successfully vaccinated ...	64	60	55	59	57
Certificates of insusceptibility ...	7	4	...	1	...
Certificates of exemption (Conscience Clause) ...	237	275	356	307	333
Percentage	20	24	32	33	34
Postponed by medical certificate ...	30	15	17	14	29
Removal to other districts	76	70	47	30	23
In abeyance ...	63	50	40	22	30

DUKINFIELD MUNICIPAL BOROUGH.—“The Registrar has furnished a return of births, successful vaccinations, insusceptible of vaccination, dead unvaccinated, postponements, removed from district, certificate of exemption, &c., from 1st January, 1912, to 31st December, 1912, in the Municipal Borough of Dukinfield.

Number of births ...	500.
Successful vaccinations ...	142
Insusceptible of vaccination ...	0
Dead unvaccinated . .	56
Postponements by medical certificates ...	14
Removed from district ...	7
Conscientious objections ...	228
Illegitimate births ...	14
Births unaccounted for ...	39

WALLASEY MUNICIPAL BOROUGH.—“The Medical Officer of Health gives the following vaccination returns for the last three years, from the 1st July to the 30th June in each year as supplied by the Vaccination Officer.

	1909-10	1910-11	1911-12
Successfully vaccinated ...	1332	1320	1344
Died before vaccination ...	103	111	124
Insusceptible ...	9	10	11
Conscientious objections ...	94	110	143
Postponed by medical certificate	50	52	39
Removed, traced and vaccination officers notified ...	30	22	8
Not found, or removed to places unknown ...	40	56	39
Not vaccinated, or otherwise accounted for ...	79	22	23
<hr/>			
Total number of births registered	1737	1703	1731

CHEADLE AND GATLEY URBAN DISTRICT.—“As in previous years, I have been unable to ascertain the exact number of children successfully vaccinated and the exact number of exemptions. I am informed that the number of exemptions obtained is rapidly increasing. As far as I can ascertain the number of children who were successfully vaccinated in the district was 78, as compared with 107 in the previous year and 120 in 1910. I do not know the number of exemptions obtained during the year, but I have reason to believe that it was greater than in the previous year.”

HAZEL GROVE AND BRAMHALL URBAN DISTRICT.—“I should like to draw special attention to the great need and the value of vaccination, which, owing to the immunity from small-pox, appears to be more lightly regarded than it deserves. The great care bestowed by the L.G.B. in its supply of lymph practically removes the old risk of imparting disease from one child to another, that caused so much objection to the system in the old days.”

Erysipelas.

There were 344 cases of this disease notified in the Administrative County during 1912. In hardly any single case is the subject deemed worthy of comment. The difficulty expressed by the Medical Officer of Health for Congleton (see below) is experienced universally. As a matter of fact, however, the disease is highly infectious and the greatest care should be taken in particular to avoid the slightest possibility of its transference to women in the puerperal state and of course to all surgical cases.

ERYSIPELAS—DIPHTHERIA.

CONGLETON MUNICIPAL BOROUGH.—“Most of the nine cases notified were of the facial type and occurred in old people. It is difficult to say what the significance of such cases is, or to know what to do with them. In all instances the sanitary condition of the house was investigated, and the house disinfected when the patient recovered.”

Diphtheria.

There were 794 cases of this disease notified in the Administrative County during 1912. The districts which suffered most severely were the following :—

			Cases.
Crewe Municipal Borough	...	...	93
Hyde Municipal Borough	...	...	30
Wallasey Municipal Borough	...	...	75
Bredbury and Romiley Urban District	...	...	14
Ellesmere Port and Whitby Urban District	...	...	19
Hoylake and West Kirby Urban District	...	...	21
Northwich Urban District	...	...	47
Runcorn Urban District	..	...	50
Winsford Urban District	...	...	45
Congleton Rural District	...	...	61
Nantwich Rural District	...	...	35
Northwich Rural District	...	...	34
Runcorn Rural District	...	...	31
Wirral Rural District	...	...	29

The mortality was not abnormally high, however, in any of these areas, except that of the Winsford Urban District, where 10 deaths are recorded, equal to a case-mortality of 22.2 per cent.

I append the remarks of certain of the Medical Officers of Health on this subject :—

BREDBURY AND ROMILEY URBAN DISTRICT.—“The health of the children at schools has been good with the exception of an outbreak of diphtheria in and about Higher Bents Lane, Bredbury, early in the year and another outbreak in June, in and about George Lane and Stockport Road, Bredbury. The former was traced, as far as possible, to a general damp condition of the locality, insanitary ashpits and freshly manured fields and the latter to stagnant mud at the bottom of an old reservoir, and the

generally damp state of the weather. The ashpits have been done away with and the reservoir drained and partly filled in with earth. St. Mark's School was closed from June 28th to July 15th, because of these diphtheria cases and was cleaned and disinfected and the plasticine used by the infected class destroyed and pencils disinfected and no further cases occurred. Cases of scarlet fever were notified in eight of the 12 months. Inquiries were made into each case and every effort made to prevent the disease spreading. There was evidently some connection between the cases in September, October, November and December, as these all occurred in Romiley and mostly amongst the children attending St. Chad's School. The school was closed from October 8th to 20th and was cleaned and disinfected. As a few more cases started soon after the school was re-opened, the Sanitary Committee anticipated the Christmas holidays, closing the School on December 6th, and the cleaning and disinfecting was done again, also the plasticine, pencils and books used by the infected classes were destroyed. These measures were evidently satisfactory, as no fresh cases occurred. The system of reports by teachers to the Medical Officer of children found to be suffering from contagious disease has been of great help and has often been the first intimation received."

NORTHWICH URBAN DISTRICT.—"During June some dozen cases of diphtheria arose amongst the customers from a particular dairy and there were many cases of severe sore throats also. A case had been notified at the farm from which this milk came and considerable pains were taken to try and discover any connection. The cattle were an excellent lot some 28 in number, the shippon quite modern and up-to-date, the dairy, a new brick built structure entirely away from the house and buildings, lit with electricity and absolutely well paved, drained and ventilated. It was strenuously denied that any communication had taken place between the patient and the dairy; on the other hand the Medical Officer of Health, the inspector and a veterinary surgeon inspected the premises, drains and cattle and nothing was found likely to cause the trouble; nevertheless after inspection and rigid enforcement of all possible preventives of infection the epidemic stopped.

"This Sanitary Authority has arrangements with the Pathological Laboratory at Manchester for the examination of swabs for suspected throats and during the year 55 swabs were reported on, 16 giving a positive and 39 a negative result."

WINSFORD URBAN DISTRICT.—"In the first half of 1911 there were five cases; in the second half four cases, total nine. In the 1st quarter, of 1912, three cases; 2nd quarter,

DIPHTHERIA.

16 cases; 3rd quarter, 11 cases; 4th quarter, 16 cases, total 46 cases. The total number at any one time was perhaps not serious, but the possibility of a wide extension at any moment kept us anxious. All the usual investigations were made without any definite result. Personal infection, water, milk, other foods, were dismissed as not being causes and in only a very few cases was it possible that infection might have taken place at school, when for instance two cases would occur in one department; though as no school became further affected, I do not myself think that that was the cause. Outfits for bacteriological examination were supplied to medical practitioners on request; also anti-toxin for treatment. Thirty-seven cases were removed to hospital, and houses, bedding and clothing disinfected. The deaths numbered 10 of which nine took place in hospital. The constant uncertainty as to the precise method of spread of the disease was the most disturbing factor. The possibility of 'carriers' was not overlooked, but the distribution of the cases did not support that view. There were no return cases. The opinion of a Local Government Board Inspector who enquired into the outbreak in company with the County Medical Officer of Health, on March 26th, 1913, was that the scavenging arrangements might have something to do with it."

BUCKLOW RURAL DISTRICT.—"Six cases in all, three removed to hospital. Three occurred in Pickmere, in January, May and July, unconnected. One in Ringway in January and one each in Baguley and Dunham Massey in June, also all unconnected. Each case was most probably an independent introduction from outside. There was no diphtheria 'in' the district."

NANTWICH RURAL DISTRICT.—"This disease was much less prevalent in the district than in the year previous.

"As usual, Willaston was more affected by the disease than any other of the townships. It is perhaps somewhat difficult to account for this, though drainage defects are very great in this township. In most of the cases of diphtheria it was difficult or impossible to trace the source of infection.

"The cases at Dodcott are worthy of notice. Two of them occurred in June, in separate houses. In July a case was reported from a farm-house at Lightwood Green. It was that of a servant girl. I went over to make investigation and found that a little girl, a member of the farmer's family, had had a sore throat about a fortnight before. I took a specimen from the throat, but no diphtheria germs were discovered in it. I removed the servant

girl to hospital and had the rooms carefully disinfected, but within the next ten days two other cases occurred in the same house."

Scarlet Fever.

The total number of cases of this disease notified in the Administrative County during 1912 was 1,798.

The disease does not appear to have been of a severe type (as indeed might be said of this disease for many years past) as evidenced by the fact that the deaths from it only numbered 37, equal to a death-rate per 1,000 of the population of 0.05.

The districts which suffered most severely from this disease were as under :—

	Cases.
Crewe Municipal Borough	127
Macclesfield Municipal Borough	289
Wallasey Municipal Borough	307
Altrincham Urban District	48
Bredbury and Romiley Urban District	43
Cheadle and Gatley Urban District	41
Ellesmere Port and Whitby Urban District	52
Hoyle and West Kirby Urban District	92
Macclesfield Rural District	80
Nantwich Rural District	48
Northwich Rural District	51
Wirral Rural District	68

I append the remarks of a few Medical Officers of Health on this matter :—

CREWE MUNICIPAL BOROUGH.—"The number of families affected was 106 and in 13 of these two or more cases occurred.

93 families had 1 case each.

8 " " 2 cases "

4 " " 3 " "

1 " " 6 " "

"Return cases followed the discharge from hospital in the following instances :—

SCARLET FEVER.

	Date of Discharge	Next Case.	Interval.
1. A. A.	June 4th	June 25th	21 days.
2. N. E.	August 6th	August 19th	13 „
3. D. H.	August 6th	August 23rd	17 „
4. W. W.	August 20th	September 4th	15 „

“These 4 cases represent 3.6 per cent. of the admissions, a lower percentage than the average for such cases.

“The average incubation period for scarlet fever is short, varying from one to seven days. The majority of those who contract the disease show symptoms from the third to the fifth day after infection. If these return cases were infected by the others, the incubation period was long.

“A total of 11 cases in one department spread over the year was the highest number in any one school and the incidence of these was such as to show no evidence of the spread of infection by direct school contact. When any marked increase in the number of scarlet fever cases is found at a school, a special enquiry is made and ‘missed’ or ‘carrier’ cases particularly sought after.

“The case mortality for the 10 years (1902-11) was an average of 2.6 per cent., that in 1912 was 1.5 per cent. Of the two deaths which occurred from scarlet fever, both were due to mixed infection, whooping-cough and pneumonia respectively. The average annual number of deaths from this cause for 31 years (1881-1911) has been eight.”

DUKINFIELD MUNICIPAL BOROUGH.—Dr. Park again refers to the special home treatment of this disease which is carried out in Dukinfield. He says:—“I was much struck on reading an article in the ‘British Medical Journal,’ some time in 1909, on the ‘Home Treatment of Scarlet Fever.’ As the prophesies and anticipation as regards hospital treatment in these cases had not only not been realised, but had in no sense diminished the number of cases notified in any degree, I determined with the consent of my Authority to carry out in our district the treatment of scarlet fever cases at home on the lines suggested by Dr. Robert Milne, Medical Officer of Dr. Barnardo’s Hospitals and Homes (the writer of this article).

“Dr. Milne claims for his treatment, which he has successfully carried out for years (more especially in connection with Dr. Barnardo’s Homes), prompt and early complete disinfection of

the individual attacked by the disease. In his opinion his treatment makes it impossible for infection to spread from person to person by contact. The treatment consists of the rubbing well into the skin and hair of the infected person oil of eucalyptus and the treatment of the throat by means of an efficient antiseptic application.

"The oil of eucalyptus is used in preference to carbolic oil because the latter is apt to set up carbolic poisoning. I recommend as a throat application 10 per cent. carbolic oil, but the nature of the antiseptic used for the throat is left in the hands of the medical attendant.

"Our method of procedure was as follows:—(1) We requested the medical men of the town to meet the Sanitary Committee and discuss the treatment. This was well gone into and they all agreed to assist the Authority in carrying it out as effectually as possible. Every pressure was laid on the importance of having a capable nurse to follow up each case and see that the treatment was carefully and effectually carried out. This suggestion, unfortunately, the Committee could not see their way at the time to adopt. Personally, I feel convinced that had this been done our results would have been even more satisfactory than they have proved to be. (2) Instructions were given to the parents of infected children as to treatment. In most cases these instructions were, so far as we know, fairly satisfactorily carried out. At first we desired the children from the infected home to attend school; other parents, however, objected, and afterwards we decided that they should not be allowed to go to school.

"The eucalyptus oil, which is provided free by the Corporation, to be used twice daily for the first four days, and afterwards once a day until the tenth day. The effect of this is to destroy the germs of infection on the skin right from the start of the disease, and *not* to wait until these germs have become disseminated, not only in the sick room and house, but also in the air outside the home. If this is done effectually there is no risk of the other members of the family living and sleeping even with the infected person, and the danger of spreading the disease is, of course, minimised. The throat treatment should be carried out also right from the commencement of the illness, very frequently for 24 hours; afterwards, at the discretion of the medical attendant.

"We commenced our treatment in July, 1909. Up to the end of June 82 cases of scarlet fever had been notified and as the

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maximum as a rule takes place in the autumn and the minimum in March I expected a much larger number of cases in the second half of the year. On the other hand only 64 cases were notified in the second half of the year. What has been our experience of these cases?

"Since 1899 we have the following notifications of scarlet fever :—

1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912
85	60	120	30	111	47	95	169	112	146	52	26	16

"This is an average for the previous 13 years of 92 cases. Let me take first of all the year, or rather the second half of the year 1909, when 64 cases were notified. In four houses duplicate cases occurred and were notified at the same time, all being infected at once. In four other houses cases were traced to infection from previous cases in the same home. In three of these four houses, through carelessness and laziness, the instructions were not properly carried out and in the fourth house the drains were in an unsatisfactory condition and had to be reconstructed and properly connected to the sewer. At the end of the first half-year's working the general opinion among the medical men of the district was that they could not rely on the treatment—particularly the throat application—being carried out effectually. To do so a capable nurse should be employed, but considering the large number of cases (82) prior to the treatment we were better off than in the earlier part of the year. It was satisfactory to know that in so few houses, even considering the want of real supervision as regards the treatment, second cases occurred. I then advised a continuation of this method of treating scarlet fever for a further period of twelve months, if possible, under supervision.

"During the year 1910 the Inspector made a special point of supervising the treatment of these cases and I have pleasure in submitting a detailed statement of the 52 cases which were notified during the year.

"In six houses duplicate cases occurred, including 14 cases in all.

"In two houses in one case two, in the other three, took the infection at the same time and were notified together.

"In a third house two cases occurred within five days of each other. Here the treatment was not well carried out at *first* as there were other three children in this house who, after treatment was thoroughly attended to, did not take on the disease.

“In a fourth house the treatment was not carried out at all at first until three children had become infected.

“In another house the interval between the first and second case notified was nearly seven weeks.

“In the last house there is considerable doubt as to the second case being scarlet fever, as the house was disinfected nine days after it was notified.

“In these houses where the 52 cases occurred 135 other children were in close contact with the infected person.

“During the year 1911 26 cases only were notified, a decrease of 26 on the previous year. In two houses duplicate cases occurred, including nine cases in all. In one house two cases of fever were notified on the same day. In 1912 sixteen cases only were notified—ten fewer than the previous year—the lowest number recorded in the borough. In two houses there were duplicate cases and again, after fifteen days, a case was notified next door to an infected house. In one of the above houses both cases were notified on the same date. In the other case the house was disinfected five days after notification.

“I have made an analysis of the cases during 1908 before this treatment was adopted and I find that out of 112 cases notified 38 were duplicate cases. I have not been able to go into previous years, but I have no doubt that a like proportion of duplicate cases occurred. On grounds not only of efficiency but of economy I strongly advocate the continuance of this method of treating scarlet fever at home. Not only is the expense of maintaining a hospital for these cases saved, but if the treatment is really carried out from the onset of the disease strong disinfection and destruction of clothing, books and other materials are unnecessary. In very few cases was disinfection of the house afterwards carried out and that was at the wish of the people themselves rendered in the houses. In most cases no disinfectants at all were used.

“To summarize, the advantages of this treatment are :—

- (1) Prevention of infection at the beginning of the attack, not waiting till convalescence when all the mischief has been done.
- (2) Children not compelled to leave home and go to hospital.

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- (3) Cases milder. Throat infection less severe.
- (4) Duration of illness less. Average on cases being two to three weeks.
- (5) Children's education not interfered with as there is no risk of infection being carried to school.
- (6) Infected children not to be kept in solitary confinement for a long period, six weeks or more, but allowed to mix with other children.
- (7) Mothers and children appreciate the treatment.
- (8) In short it is satisfactory, efficient, economical.

"I am so satisfied with the results of this treatment during the past three and a half years that I recommend its continuance. At the same time if the Council can see its way to provide a thoroughly reliable nurse to see that it is properly carried out in every case, I am confident that the money will be well spent and the risk of duplicate cases nullified."

WALLASEY MUNICIPAL BOROUGH.—Dr. Barlow commenting on the figures for this Borough remarks that:—"They certainly do not point to the conclusion that the isolation of scarlet fever in hospital has been attended by all the benefits which at the time of the establishment of these institution it was prophesied would result. It will be observed that when the percentage of cases removed was much below the average, the attack-rate was considerably below the average also. Of course too much importance must not be placed on this fact, because the higher the incidence of disease, the larger will be the number of cases going into hospital and the greater also will be the number of concealed, unrecognised and missed cases, which in their turn tend to make the attack-rate still higher. Moreover, the establishment of hospitals for scarlet fever can be justified on other grounds than their effect on the incidence of the disease, *e.g.*, there are many houses in every district in which isolation of any kind is absolutely impossible and where even the mildest case could, moreover, only be most inefficiently treated. At the same time, however, there can be no doubt that many cases are removed to hospital which could, with perfect safety to the other members of the family and the public, be isolated at home. The only reason that can possibly be adduced for sending some of the extremely mild cases from good homes into hospital is that thereby the parents are saved some trouble. I do not sympathize with that view."

HOYLAK AND WEST KIRBY URBAN DISTRICT.—"The mild type of scarlet fever which prevailed during 1911 was again present

in 1912 and 92 cases were notified, against 155 in the former year and 75, the average for the previous ten years. No deaths took place. Thorough disinfection of infected houses was carried out and the removal of patients to the isolation hospital was effected as rapidly as possible. The question is constantly debated as to why a district—where the water supply, sewerage and house drainage are excellent and where nuisances, when discovered, are rapidly removed—should have such an incidence of scarlet fever. The answer, in my opinion, is to be found in two main factors, viz. :—(1) the district is a health resort and receives convalescents (after illness, infectious or otherwise) in large numbers; (2) its situation and its intercourse with large centres of population, *e.g.*, Liverpool, Birkenhead and Wallasey. The prevalence is the result of these two factors and although scarlet fever is constantly stamped out, it is just as certainly re-introduced. Another important point is that the mildness of the disease leads to its remaining undetected and several patients have become infected before any case is notified. One outbreak was clearly traced to such a train of events and there can be no doubt but that it is a not infrequent occurrence. All modern writers on the subject emphasise the change which has taken place in scarlet fever within the last two decades, by which it has altered from a most malignant disease to a comparatively mild affection. Not only has the disease itself become mild, but its complications are neither so formidable nor so widespread. Nevertheless, despite numerous investigations, the medical profession is still ignorant of the causal agent of scarlet fever, but know that it is spread by personal infection. In an appended table at the conclusion of this section of the report on infectious diseases, there will be found a table showing the number of cases and houses in which infectious diseases were notified month by month. From this it will be seen that 53 cases of scarlet fever occurred in Hoylake and 31 in West Kirby. In this table the Convalescent Home at West Kirby has been treated as a separate area on the ground that most of the patients received in this institution do not belong to the district. During 1912, 1,066 children were treated in the Convalescent Home and eight cases of scarlet fever were notified by its medical officers as having been detected. Every child is examined by a member of the nursing staff on admission and on the same or at latest the following day a medical man investigates its physical state. A condition precedent to admission is the reception of a medical certificate that the child has not been in contact with any case of infectious disease so far as is known. The forwarding of this certificate necessarily takes place a day or two before the despatch of the child to West Kirby. Opportunities for infection may occur during the period intervening between examination by the family

SCARLET FEVER—ENTERIC OR TYPHOID FEVER.

doctor and reception in the Convalescent Home. The railway journey affords additional opportunities for infection. This may account for instances where scarlet fever is detected a day or two after the child's admission, but there are other cases where a child who has been in the wards for months develops the disease without apparent contact with an infected person. One is bound to conclude that to the latter group some child has brought the infection who is itself free from any of the signs of scarlet fever, is, in other words, a 'carrier.' How to detect the carrier case is the problem not only as regards the Convalescent Home children, but also as regards the visitors to your district."

MACCLESFIELD RURAL DISTRICT—"The increase in the number of notifications is almost entirely attributable to scarlet fever—the Gawsworth sub-district alone being responsible for 41 cases. This was due for the most part to an outbreak in connection with St. James' School, Sutton, which on two occasions had to be closed on account of the prevalence of this disease. Most of the cases were of an extremely mild character and this fact added greatly to the difficulty of tracing and controlling the outbreak which without doubt was maintained by some mild cases remaining unrecognised.

"In the Prestbury sub-district eight cases were attributed to the visit of a child from another district who was supposed to be recovering from acute rheumatism, but who was suffering at the time of his visit from a discharge from his ear. Other cases occurring throughout the area were of a sporadic character, not being associated with any other known cases of the disease."

Enteric or Typhoid Fever.

This disease was not specially prevalent in the Administrative County during 1912 except in two areas, viz. :—the Urban Districts of Runcorn and Winsford. The former is a district which appears to be specially prone to the endemicity of enteric fever, probably owing to the large number of privy-middens it contains, but the Council have fully realized the dangers of these insanitary structures and have most wisely embarked on a scheme for their wholesale removal.

In the case of Winsford the prevalence was unusual, but in spite of this the Council have realised the potential danger of pail closets and privy-middens and are moving in the direction of their abolition.

The total number of cases of this disease notified in the Administrative County during 1912 was 155, namely, 53 in the

seven Municipal Boroughs, 70 in the 35 other Urban Districts and 32 in the 12 Rural Districts.

I append the remarks of certain Medical Officers of Health on this matter.

CONGLETON MUNICIPAL BOROUGH.—“The one case notified was that of a young man, whose home was in Manchester, where he spent the week ends, working in Congleton during the week and it could not be determined which of the two places was responsible for his infection. The sanitary state of the house where he lodged in Congleton, including its water supply, was very good. He was removed to the isolation hospital.”

CREWE MUNICIPAL BOROUGH.—“The marked diminution in the incidence of enteric fever in the borough is satisfactory. In this connection it is of interest to quote Dr. Newsholme’s opinion, as recorded in his Annual Report for 1911-12 to the Local Government Board, in which he states :

‘Probably no better test exists of the efficiency of the sanitary administration of a given district and of the districts from which it receives its food supplies, than the degree of prevalence of enteric fever.

‘Evidently the problem of almost complete extermination of enteric fever is within a manageable compass. It involves (1) certain sanitary reforms, (2) the protection of the community from infected foods, such as milk, ice-cream and shell-fish, produced or prepared or grown under conditions which render them liable to contamination and (3) the treatment of all cases of the disease under the best hygienic conditions.’

“The entire disappearance from Crewe in the future of the old privy midden and the pail closet will result in a proportionate further lessening of enteric fever. The reduction which has taken place is largely due to the sanitary improvements already carried out, to the freedom from contamination of the food supplies which might act as vehicles of infection and to the provision of hospital isolation where required.”

STALYBRIDGE MUNICIPAL BOROUGH.—“We have not a hospital for these cases, so that usually they have to be treated at home, often under the most disadvantageous conditions. When, however, the Borough Hospital, Ashton-under-Lyne, is available for the reception of these cases our sanitary authority are kindly permitted to make use of the hospital for such cases from our Borough as we may desire to send there.

ENTERIC OR TYPHOID FEVER.

"When cases of typhoid fever have to be treated at home great precautions to prevent its spread are taken by our sanitary authority in providing special pails with disinfectants for the reception of all discharges from the sufferer, in instructing the inmates upon the necessity for strict personal cleanliness of the patient and themselves, as well as for cleanliness of the bed and body linen, in advising the destruction of all food left by the patient and in the destruction of beds and mattresses which have become much soiled with discharges. The sanitary conveniences of the premises also receive prompt and thorough attention."

HOYLAKE AND WEST KIRBY URBAN DISTRICT.—"Notification was received of four cases of enteric fever. One on bacteriological examination failed to re-act to the Widal test, but the other three were undoubtedly typhoid. One had been away from the district and infection could not have been acquired in it if one accepts the usual incubation period as correct. In one there was a history of having partaken of mussels, which had been brought from the estuary of the river and eaten sixteen days before the illness began. In the remaining case, investigation failed to elucidate the problem of where the infection came from."

HOLLINGWORTH URBAN DISTRICT.—"During this quarter, also, a case of enteric fever, which occurred in Green Lane, was investigated. The sanitary conditions of the house and surroundings were found satisfactory, and the source of the fever was ultimately attributed to the sufferer having been in the habit of drinking water from the River Etherow. The management of the River Etherow Bleaching concern took prompt measures in issuing a notice, stating that the river water was not fit for drinking purposes. The sufferer succumbed."

WINSFORD URBAN DISTRICT.—"Sixteen cases occurred, 15 of them between August 7th and November 30th, in one small and sharply defined area (Hill Street), in six groups, viz., (1) five cases in August, (2) one case late in September, (3) three cases early in October, (4) one case late in October, (5) one case middle of November, (6) four cases end of November.*

"Two houses had four cases each, one house three cases, one house two cases, and two houses one case each.

"All were promptly removed to hospital, as discovered; but unfortunately there was delay in many cases, especially the earlier ones, in discovery being made. It is my belief that other cases also occurred which escaped discovery.

* Three cases have occurred in March, 1913, in one of the last named houses, with one death.

ENTERIC OR TYPHOID FEVER—CEREBRO-SPINAL MENINGITIS—
ACUTE POLIOMYELITIS.

“The whole of the cases, after the first, were easily traced to personal contact, or privy infection ; but how the first case arose could never be made out, in spite of careful and continued enquiry. Later it was thought that one woman was a possible ‘carrier,’ but as she refused to permit examination, the point was never settled. Two cases proved fatal.”

Cerebro-spinal Meningitis.

Very few cases of this disease were notified in the Administrative County. There are only two references to it in the Annual Reports of the District Medical Officers of Health as follows, viz. :—

CONGLETON MUNICIPAL BOROUGH.—“Although one case was notified and treated as such, in so far as measures for the prevention of infection of others and disinfection were concerned, the Medical Officer of Health did not consider the history of the case and the circumstances of its occurrence were consistent with its being cerebro-spinal meningitis.”

WINSFORD URBAN DISTRICT.—“One case notified ; but death occurred before a visit could be made.”

Acute Poliomyelitis.

This disease only receives mention in one report, viz., that of the Medical Officer of Health for the Congleton Rural District, who writes as follows :—

“Five cases of this disease occurred in the District and four of these cases were in the Parish of Brereton. One case was fatal, the others are all recovering but are not perfectly well yet. The Council adopted compulsory notification of this disease in 1911 and last year the Local Government Board made it compulsory all over the country. There were seven cases in an adjoining District and the County Medical Officer of Health sent down an assistant to report on this outbreak. Together we visited every case but we could not trace the communication between the cases. In my opinion there were other cases not medically attended, because sometimes it is so slight as either not to be recognized or to be mistaken for another disease. Most of these cases began with diarrhœa and sickness with no symptoms of paralysis for the first week.”

Measles.

This has been prevalent to a considerable extent and has in many districts been the cause of high mortality. The Municipal Boroughs of Crewe, Dukinfield and Wallasey and the Urban District of Winsford (the last-named particularly) seem to have suffered exceptionally from this disease. The Urban Districts of Cheadle and Gatley, Knutsford and Lymm also had more than their average share of the disease.

In the Lymm Urban District the disease has been compulsorily notifiable for more than 10 years and some most interesting figures are given by the Medical Officer of Health, Dr. E. M. De Jong, who states that in his experience the notification has been amply justified. His opinions on this point are worthy of serious consideration.

I quote certain paragraphs dealing with this disease from the Reports of several Medical Officers of Health.

CONGLETON MUNICIPAL BOROUGH.—“A very extensive and severe epidemic began in May and continued till the end of August. The first case was that of a girl attending the Wagg Street Wesleyan School, who ten days before had visited and stayed for a night in a house in Mow Cop where some of the inmates were suffering from measles. In the interval of her visit and of being laid up herself she continued to attend school and infected 12 children, most of them in the same class. After this the disease spread rapidly, not only through this school but over the whole town. Every effort was made to control the outbreak. Lists were daily supplied by the teachers of all absentees with their addresses and of children appearing to be ailing in the school, and these, some hundreds in number, were visited by the Medical Officer of Health, the School Attendance Officer or Sanitary Inspector with a view to keeping infected children or children from infected houses out of the schools or from exposing themselves. An enormous amount of work of this kind was done but, as the result proved, uselessly. The schools were closed for periods varying from 3 to 4 weeks, mostly ending with the commencement of the summer holidays and on re-assembling the outbreak had come to an end not, it is thought, through the school closure or any of the other efforts that were made but simply from all susceptible material having becoming exhausted. With regard to this disease, it would probably be as well to accept the truth of the notion, very common at one time with regard to infectious diseases generally, that all children had to have them some time or other and the sooner they had them and were done with them the better. You of course read of outbreaks of measles having been cut short or arrested through the efforts of some one or other, but there does

not seem to be any available evidence of such a thing happening in Cheshire or anywhere else near enough to admit of the whole circumstances being investigated. All the schools were very thoroughly disinfected before being re-opened."

CREWE MUNICIPAL BOROUGH.—"Measles has caused a high death-rate in the Borough every five to seven years since 1874, but although the deaths numbered 22 in 1912 the rate was lower than it had been in previous outbreaks.

"An analysis of the ages at death shows that of the 22 deaths, 21 were under five years of age (five under 1, five under 2, 11 between 2 and 5 years of age). In 20 of the deaths, lung diseases were the fatal complications—11 cases of bronchopneumonia, five of bronchitis and four other forms of lung trouble.

"School teachers assist the Public Health Department very much by forwarding daily returns of the children absent from school through measles and whooping cough. The homes of these cases are at once visited by the Sanitary Staff and advice given by means of leaflets as to the needful precautions against infection. Where no medical advice has been obtained, the parents are urged to call in their doctor and the dangers of complications explained to them.

"To the efforts of your Public Health Staff in carrying out this educational work may be attributed, in some measure at least, the lessened mortality in the recent epidemic. Greater care on the part of parents in isolating the first case which occurred in their family and maintaining adequate isolation for three weeks would go far in lessening the prevalence of measles and reducing the mortality in epidemic times."

WALLASEY MUNICIPAL BOROUGH.—"In December it was found advisable to close the Infants' Departments of Manor Road Council School and Wallasey Council School, together with the Infants' Departments of the Sunday Schools in those particular districts in consequence of the large number of the children attending who were suffering from measles.

"I may frankly confess that the closure of schools was not advised with any idea of stopping its spread. In an Urban district I am fully convinced that no advantage in that respect can be gained by school closure. Under present conditions (the epidemic grant having been stopped by the Board of Education), those Authorities which are keenest on preserving the health of the children by rigidly excluding all cases suffering from infectious

MEASLES.

disease and children in contact, are penalised. When a whole Department is closed, the grant is made. When individual scholars are excluded owing to illness, the grant is lost. Thus with regard to Manor Road Schools, the teachers by rigidly excluding suspects in accordance with my desire, were acting against the financial interests of the Education Committee. The closure of schools has, as regards the prevention of the spread of measles, whooping-cough and similar diseases, been proved by long experience to be a worthless procedure. Having advised the closure of a school, the source of information as to the number of fresh cases is at once cut off. The suspects, or even children actually suffering from the disease, play in the streets with other children while the schools are closed, or even attend other schools. Surely the commonsense way of dealing with an epidemic is to exclude those actually suffering, together with susceptible contacts and by visitation at the homes not only can advice be given as to the necessary treatment to be adopted, but infected children can be prevented from entering the school. The Authority attempting to stop the disease in this way, however, ought not to be penalised financially ; and until the old condition is reverted to, I am sorely afraid that attempts to limit the spread of disease like whooping-cough and measles are foredoomed to failure."

CHEADLE AND GATLEY URBAN DISTRICT.—"In June, 1912, the first case from the Cheadle Council Schools was reported to me, but it was not till September 2nd that the outbreak really began. On September 2nd one or two cases were reported and during September the number of cases from the Infants' Department of the Cheadle National Schools and Cheadle Council Schools and the Cheadle Heath Infant Schools increased each week, so that on October 4th, on visiting the three schools, I found the attendance was so bad and the disease was spreading so rapidly, that I advised your Council to close the above-mentioned schools for three weeks, which was done. When the schools were re-opened on October 28th I visited them all and found the attendance still very bad and so many children away on account of measles, that I requested your Council to close them again for another fortnight—making five weeks in all. At the end of the fortnight I visited the schools when they had re-opened and found the attendance gradually improved, although several children were away. After about a week the attendance was well up to the average and at the end of another 14 days the outbreak had completely subsided.

"Owing to the regulations, which requires all children being kept from school who came from a house where there is a case of

measles, it was necessary not only to close the Infant Department but also the Mixed Departments. In previous outbreaks I have only ordered the Infant Departments to be closed and the results have been quite as satisfactory as when the whole school was closed.

“The disease was, on the whole, of a rather severe type; the rash was very intense, and the bronchial symptoms very troublesome. One death was registered as due to measles and its complications.”

KNUTSFORD URBAN DISTRICT.—“The minor infectious diseases included one somewhat severe epidemic of measles. This commenced in Crosstown in August, information being received from the school, which was closed on September 6th, six or eight cases being known. Mr. O. N. Edwards was employed temporarily as Assistant Inspector for domiciliary visitation, on my usual plan. The closing was prolonged in stages to October 13th, by which time 70 cases had been registered and two deaths had occurred. In October and November the epidemic invaded the other schools; the Egerton Schools were closed from October 15th to November 11th and St. Vincent's from October 12th to November 8th, 210 cases being known, with several deaths. In all 298 cases were registered, with eight deaths. Miss J. Bebbington replaced Mr. Edwards during a part of the time and to the care and attention of these two officers the town owes it that the mortality was not far higher. Each of the deaths that occurred was due to inter-current pneumonia and therefore (it is to be supposed) might have been avoided by more careful nursing. Two children were under one year, three under two years, one under three years, one under five years and one under six years. No notices were received from St. Vincent's School and it is quite possible that the disease gained sufficient hold there, before we were aware of it, to cause the epidemic of October and November, which occurred just as that in Crosstown died out.

“In March and April there had been measles in the Work-house, with five deaths (one of which belonged to Knutsford), but none were known in the town at that time. Two cases were notified from the Egerton Schools in July and one in August, so it has to be admitted that there were some cases (which attracted little attention) prior to the Crosstown outbreak.”

LYMM URBAN DISTRICT.—“With regard to measles which has now been notified in Lymm for more than 10 years, the following figures may be of interest. They are for the decade ending 1911 and also for 1912.

MEASLES.

MEASLES IN LYMM (1902-1912).

	All ages.	Under 1 Year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.
1902	... 2	... —	... 1	... 1	... —	... —
1903	... 43	... —	... 32	... 11	... —	... —
1904	... 161	... 9	... 74	... 74	... 4	... —
1905	... 5	... —	... 3	... 1	... 1	... —
1906	... 81	... 1	... 32	... 45	... 3	... —
1907	... 108	... 4	... 41	... 61	... —	... 2
1908	... 90	... 3	... 46	... 35	... 5	... 1
1909	... 1	... —	... —	... 1	... —	... —
1910	... 6	... —	... 2	... 4	... —	... —
1911	... 14	... —	... 9	... 5	... —	... —
1912	... 307	... 20	... 178	... 102	... 6	... 1

"Out of 511 cases during 1902-11 inclusive there were three deaths, one of a baby a fortnight old; one a child under two years and all under five years old, being 0.6 per cent. of cases affected.

"For the year 1912 there were two deaths in 307 cases, one under two years of age and one under three years, being .7 of the cases attacked. With these results we ought to be more than satisfied and I think my figures sufficiently large and taken over a sufficient period of time to be of statistical value. I feel that from more than *post hoc* reasoning, notification in Lymm has amply justified itself. As far as the incidence of measles is concerned, I am of opinion that neither notification nor closure of schools, even when very early, is of much avail. It is impossible to isolate in the cottage houses of the poorer class and again measles is infectious even when incubating and before evident symptoms. But notification means in every case care and medical supervision and undoubtedly lessens the severity of the attack and wards off complications. Furthermore, as a result of the 1912 epidemic, I have as yet seen no case of eyes, ears, or permanent debility or chest mischief as a consequence of an attack. All this goes to support notification."

WINSFORD URBAN DISTRICT.—"A wide-spread epidemic occurred from February to June. Nurse Such was employed from February 16th to June 1st and Nurse Mellor from March 12th to May 4th, to visit cases and houses and advise parents. Every school was closed at one time or another. Over 1,000 cases were registered and the real total would probably be between 1,100 and 1,200. There were 25 deaths, which is only about half the usual fatality."

Puerperal Fever.

This is dealt with more fully in the section relating to midwives. The number of cases notified during 1912 in the Administrative County was not large (27), but one is apt to regard every case of puerperal fever which occurs as evidence of neglect or carelessness somewhere and to take the view that there is really no need for a single case to occur any more than there is any need for "blood poisoning" to set in after a surgical operation. In other words the infection is, in all but the merest fraction of cases, derived from outside and is therefore a thing which can and should be prevented. Four cases occurring in the Northwich Rural District is a high percentage and some effort should be made to locate and deal with the cause, unless the occurrences should chance to be merely accidental, if one may apply such a term to such a disease.

Section V.—Isolation Hospitals, &c.

Most parts of the Administrative County are well provided with Isolation and Small-pox Hospitals. A complete list of these was given in my Annual Report for 1910 and a note is contained in Table III. of the accommodation provided in or utilised by the several districts in the County. That they are fully utilised by the majority of the districts is evidenced by the following figures shewing the number of cases usually removed to such hospitals which were notified and the number of such cases which were actually removed to hospital for treatment:—

	Cases Notified.	Cases Removed to Hospital.
Small-pox ~ ...	3	2
Scarlet Fever ...	1798	1044
Typhoid Fever ...	155	77
Diphtheria 	794	427

There are a few districts in which I am not satisfied with the provision the Councils have made in the matter of isolation and small-pox hospital accommodation. Taking isolation hospital accommodation for scarlet fever, typhoid fever and diphtheria these districts are:—

Dukinfield Municipal Borough.
 Stalybridge Municipal Borough.
 Bredbury and Romiley Urban District.

ISOLATION HOSPITALS.

Compstall Urban District.
 Handforth Urban District.
 Hazel Grove and Bramhall Urban District.
 Hollingworth Urban District.
 Marple Urban District.
 Mottram-in-Longdendale Urban District.
 Yeadsley-cum-Whaley Urban District.
 Chester Rural District.
 Disley Rural District.
 Malpas Rural District.
 Tarvin Rural District.
 Tintwistle Rural District.

And taking provision for cases of small-pox the districts which are *primâ facie* in default are:—

Dukinfield Municipal Borough.
 Bredbury and Romiley Urban District.
 Compstall Urban District.
 Handforth Urban District.
 Hazel Grove and Bramhall Urban District.
 Hoole Urban District.
 Marple Urban District.
 Mottram Urban District.
 Tarporley Urban District.
 Yeadsley-cum-Whaley Urban District.
 Chester Rural District.
 Disley Rural District.
 Tarvin Rural District.
 Tintwistle Rural District.

I am making inquiries into this matter and am shortly about to make a special report on this question in which I will submit the observations of the several Councils concerned, so that the subject may be left for the present.

I append certain remarks of District Medical Officers of Health on this important matter:—

CREWE MUNICIPAL BOROUGH.—“The small-pox hospital. This building is situated on the north side of Pym’s Lane, off Minshall New Road, upon the Corporation Farm. The original premises provide accommodation for the Caretaker

and his family, 2 bedrooms for patients and 2 suitable rooms for a nurse. In 1903 a small galvanized iron pavilion was fitted up in the farm yard and in this there are 2 commodious wards. There are 12 beds. The hospital has not been occupied during the year but has been kept ready for any emergency.

“The isolation hospital. This hospital has been in use since October 16th, 1897 and was erected at a cost of £9,500 (cost of site included). It consisted originally of 5 blocks:—

1. Administrative block.
2. Typhoid pavilion, 2 wards.
3. Scarlet fever pavilion, 2 wards and 2 private rooms.
4. Observation block.
5. Discharge, laundry and disinfecting block.

“The patient accommodation was 28 beds.

“Owing to the rapid growth of the population and the increasing number of patients treated, it was found necessary to enlarge the hospital. The additions commenced in 1903, were ready for occupation by March 30th, 1904 and comprised a diphtheria pavilion (2 wards and 2 private rooms) and administrative accommodation. The cost of these extensions was £3,066.

“In 1909 a revolving open-air shelter was erected for the treatment of pulmonary tuberculosis, at a cost of £46 10s. 4d. (exclusive of beds).

“The accommodation is now 42 beds distributed as follows:—

Typhoid Pavilion...	...	...	10 beds
Scarlet Fever Pavilion	...	...	16 „
Diphtheria Pavilion	...	...	12 „
Observation Block	...	...	2 „
Open-air Shelter	...	...	2 „

“The full hospital staff consists of the matron, 8 nurses (1 sister, 2 staff, 4 assistant and 2 probationer nurses) and 6 maids (cook, housemaid, scullery maid, 2 ward maids and laundry maid). There is a non-resident ambulance attendant, who also acts as disinfecter for the Health Department, a porter and a gardener. Occasional extra assistance has to be obtained in the laundry.

ISOLATION HOSPITALS.

“The cases dealt with in 1912 were:—

	In Hospital December 31st, 1911.	Admitted.	Discharged	Died.	In Hospital December 31st, 1912.
Scarlet Fever...	32	111	134	2	7
Diphtheria ...	13	82	81	8	6
Enteric Fever...	—	2	1	1	—
Phthisis ...	—	7	6	1	—
Erysipelas ...	1	—	1	—	—
Total ...	46	202	223	12	13

“There were fewer cases admitted in 1912 than in any year since 1906.

“The following statement of expenditure for the year on the isolation hospital ending 31st December, 1912, may be of interest:—

EXPENDITURE.

	£	s.	d.	£	s.	d.
Salaries of Matron, Nurses, etc. ...	...			317	19	10
Porters' Wages (proportion) ...	...			93	1	6
Nurses' Uniform ...	...			21	11	1
Maintenance of Patients and Staff:—						
Groceries ...	...	158	13	5		
Butchers' Meat ...	...	114	1	9		
Fish, Ice, etc. ...	...	9	10	10		
Vegetables ...	...	13	1	5		
Milk ...	...	99	12	2		
Bread ...	...	48	12	0		
Stimulants ...	...	0	19	6		
				444	11	1
Druggists' Sundries and Anti-toxin ...	...			68	9	10
Drapery, Crockery, Hardware, Cleaning Materials, etc. ...	...			72	6	10
Repairs to Vans, Laundry Fittings, Disin- fecter, Electric Light Fittings, etc.	...			48	4	3
Maintenance of Buildings, etc. ...	...			62	4	2
Gas ...	...			20	4	3

ISOLATION HOSPITALS.

	£	s.	d.
Electricity	84	3	6
Water	20	15	4
Rates and Taxes	71	17	0
Insurance	9	3	1
Telephone Charges	20	14	1
Fuel	150	9	11
Cultivation of Grounds	58	5	5
Horse Hire for Ambulance	90	14	0
Interest on cost of Electric Main	13	11	9
Printing, Stationery, Advertising, etc.	12	8	4
Asphalting Walks, etc.	12	12	3
Furniture and Repairs	38	1	4
Sundries	6	0	3
	<hr/>		
	£1,737	9	1

INCOME.

	£	s.	d.
Removal and Maintenance of Patient... ..	74	18	0
Contribution from Cheshire County Council under Isolation Hospital Acts	222	9	0
	<hr/>		
	£297	7	0

"The cost of maintenance per case; the average daily number of patients and their average residence, &c., since the opening of the hospital are shewn in the following table:—

Year.	PATIENTS.			Total Expenditure	Average cost per patient.	Daily cost per head for provisions	Provisions.
	Total admitt- ed.	Average daily number.	Average residence in days.				
				£ s. d.	£ s. d.	s. d.	£ s. d.
1898	68	9.1	48.0	1020 2 0	15 0 0	2 4	378 19 6
1899	73	9.6	48.0	1083 7 1	14 16 9	1 11½	347 4 9
1900	158	20.3	47.0	1161 11 8	7 7 0	1 1½	417 19 0
1901	129	17.0	48.0	1367 0 10	10 12 0	1 5½	452 18 0
1902	102	11.7	42.0	1173 5 9	11 10 0	1 5½	314 10 7
1903	169	22.4	48.5	1404 6 7	8 6 2	0 11½	398 19 7
1904	298	34.2	42.0	1642 14 3	5 10 3	0 10½	561 2 4
1905	160	16.7	38.5	1592 0 3	9 19 0	1 7½	488 16 2
1906	141	16.0	41.6	1408 12 9	9 19 9	1 3½	384 15 8
1907	420	38.8	32.7	1893 9 1	4 10 1	0 10½	601 8 3
1908	285	31.3	41.1	2182 12 9	7 13 1	1 1½	661 16 7
1909	254	25.6	36.8	1779 18 11	7 0 1	0 11½	450 13 10
1910	401	36.6	35.1	1907 2 9	4 15 1	0 9½	523 6 7
1911	326	33.0	37.5	1845 13 1	5 13 2	0 9½	494 5 11
1912	202	23.0	38.8	1737 9 1	8 12 1	1 0½	444 11 1

N.B.—The above calculations of cost do not include repayment of principal, nor payment of interest on capital.

ISOLATION HOSPITALS.

HYDE MUNICIPAL BOROUGH.—“Thirty-seven cases of infectious diseases belonging to the Borough have been isolated and treated in the Hyde Isolation Hospital during the year. Eighteen of these cases were diphtheria, 14 scarlet fever and five enteric fever.

“Cases received in hospital from outside districts:—

District.	Scarlet Fever.	Enteric Fever.	Diphtheria.	Observation.
Droylsden ...	6	1	1	0
Denton ...	13	3	2	0
Bredbury and Romiley	7	1	3	0
Audenshaw ...	1	2	0	0
Marple ...	0	1	3	0
Compstall ...	3	0	1	1

DUKINFIELD MUNICIPAL BOROUGH.—“We have arrangements with the Hyde Hospital Authorities for four beds, two for small-pox and two for other infectious cases, but we have never had any difficulty in arranging for more cases to be admitted. The Hyde Fever Hospital has beds quite sufficient to allow of the treatment of all the infectious cases we are likely to send to hospital. All our small-pox cases are sent to hospital and other infectious cases are also sent at the discretion of the Sanitary Authority.

“We use the disinfecting apparatus at the Hyde Hospital to disinfect bedding, clothing, &c. and the disinfecting baths there when required.”

STALYBRIDGE MUNICIPAL BOROUGH.—“Unfortunately we are still without isolation hospital accommodation for infectious diseases other than small-pox. For small-pox we are sufficiently provided, along with the neighbouring authorities of Ashton-under-Lyne, Hurst, Limehurst and Audenshaw, at Hartshead.

“The hospital proper is a corrugated iron building, containing two wards with 10 beds in each ward and with annexes for earth-closets and sinks and kitchen and bath-room. The old farm house adjoining the hospital has been adapted into an administration block for the matron and nurses and a cottage for a caretaker. Some out-buildings of the farm have been transformed so as to furnish a laundry, a disinfecting chamber with a Thresh’s disinfecter, a storeroom, a dispensary and day-rooms and bedrooms for convalescents and

nurses, with bathrooms and w.c. A mortuary with two slabs is provided well away from the hospital. The water supply is derived from the surrounding land and collected in two large tanks, from which it is conveyed by galvanised iron service pipes. The water has been analysed and declared quite fit for all domestic purposes.

"The site at Hartshead belonging to the Joint Small-pox Hospital Board is an extensive site comprising several plots and measuring in all some 40 acres and only a small portion of it is occupied by the small-pox hospital with its administration block and out-buildings and here, I maintain, is ample scope for the erection of other blocks, in which provision should be made for other infectious diseases, notably scarlet fever, diphtheria and typhoid fever.

"It has frequently been a matter of regret and of anxiety to me, when such cases have occurred in dwellings where anything approaching isolation was altogether unattainable, or where it was impossible to check the popping in and out of inquisitive neighbours, that we were unable to have the patient removed to a hospital both for the benefit of the sufferer and for the protection of the public.

"On November 26th, 1908, at the Ashton-under-Lyne Town Hall, a Local Government Board Inquiry was held *re* the application of the Joint Small-pox Hospital Board to become a Joint Hospital Board with power "to provide, maintain and manage hospital accommodation for the reception of cases and of infectious diseases other than small-pox," but the sanction of the Local Government Board to this application is withheld at present, as the Local Government Board desires to be satisfied that the buildings which the Joint Hospital Board contemplate erecting will be of a sufficiently substantial character for their exposed situation.

"With the object of minimising as much as possible the individual expenditure of the constituent authorities the Joint Hospital Board invited the co-operation in the scheme of other neighbouring authorities, but up to the present their appeal has not met with success. It is sincerely to be hoped that before long satisfactory arrangements will be made so that the scheme may be efficiently carried out.

"The hospital has only been in use on the rare occasions when small-pox has happened to make its appearance in one or more of the districts of the Joint Hospital Board, so that

ISOLATION HOSPITALS.

the hospital has to be kept in order and in readiness for lengthy periods during which there are no patients to be admitted. The Local Government Board have therefore suggested that during such times the hospital might well be utilised as a sanatorium for those cases of pulmonary tuberculosis which are suitable for treatment in the open situation and the bracing atmosphere which the hospital affords. The Joint Hospital Board are quite agreeable to comply with this suggestion but are anxious also to obtain sanction to their using the hospital for infectious diseases other than small-pox or pulmonary tuberculosis as occasion may arise. No such sanction has as yet been obtained and the matter remains in abeyance and the hospital unfortunately cannot be made use of.

"The Disinfection Station. Although we are not yet suitably provided with isolation accommodation for such cases as it would be desirable to remove, nevertheless the Borough now possesses an up-to-date disinfection station. This station is situated at the Flatts, in proximity to the destructor. It contains a receiving room, a bath room, a dressing room and a discharging room, through which "contacts" can be passed so that they are then free to mingle again with their fellowmen, while disinfection of clothing or bedding can be efficiently carried out by saturated steam under pressure in a "Nottingham" steam disinfector, fitted with vacuum and exhaust apparatus of the latest type. It has been most valuable for the disinfection of bedding and other articles in cases of scarlet and typhoid fevers, as well as of puerperal fever and of phthisis, thereby assisting most powerfully in the control and prevention of infectious disease."

ALDERLEY EDGE URBAN DISTRICT.—"Alderley Edge is one of the Councils forming the Bucklow Joint Hospital Board. Cases of scarlet fever, diphtheria and enteric fever can be sent to the Manchester Corporation Isolation Hospital at Monsall, and small-pox cases to the same Corporation Isolation Hospital at Clayton. The patients are removed in a motor ambulance and bedding, &c., are also sent to the same institutions for disinfection."

ALTRINCHAM URBAN DISTRICT.—"The Sinderland Isolation Hospital has been in constant occupation during the year, 46 cases of scarlet fever, 10 cases of diphtheria and 4 cases of enteric fever have been treated. There were no deaths during the year. An arrangement has been made to receive cases from Bowdon Urban District and so far 9 cases of scarlet fever have been treated in the hospital."

HIGHER BEBINGTON URBAN DISTRICT.—“The Wirral Joint Hospital Board (to the expenses of which you are a contributory body) supply the necessary isolation accommodation for infectious diseases. The number of beds provided and the diseases treated are as follows:—

Greasby Hospital	...	8 beds, small-pox.
Clatterbridge Hospital	...	12 beds, diphtheria.
		6 beds, typhoid fever.
		40 beds, scarlet fever.
		2 beds, observation block.
Pensby	...	20 beds, convalescent scarlet fever patients.”

LOWER BEBINGTON URBAN DISTRICT.—“The Wirral Joint Hospital Board (to the expenses of which you are a contributory body) supply the necessary isolation accommodation for infectious diseases. The number of beds provided and the diseases treated are as set out under Higher Bebington.

“There has been no deficiency of accommodation for infectious cases. A daily report is received by the Inspector at the Council Offices of the progress of patients in the hospital, and a list is published on the notice board for the convenience of the guardians of the children.”

BREDBURY AND ROMILEY URBAN DISTRICT.—“There are no hospitals in this district, but there are several very good ones in the neighbouring towns, of which use is made when necessary. The infectious diseases' hospital is in Hyde and we have an agreement, whereby, for an annual payment, four beds are placed at our service, three in the new buildings for ordinary cases and one in the old building for small-pox. Further beds can also be utilised for an additional payment. This accommodation has been ample hitherto, as there has never been any difficulty in getting our cases admitted.”

BROMBOROUGH URBAN DISTRICT.—“The Council provide hospital accommodation for acute infectious diseases by being one of the constituent authorities of the Wirral Joint Hospital Board. The number of beds provided and the diseases treated are as set out under Higher Bebington.”

CHEADLE AND GATLEY URBAN DISTRICT.—“In 1903 your Council made arrangements with the Withington District Council (which has now been incorporated into the City of Manchester) for admission of cases of scarlet fever, diphtheria

ISOLATION HOSPITALS.

and enteric fever into their sanatorium at Baguley. Three beds were retained, which so far have been sufficient for the needs of the district, unless there was a sudden outbreak.

“On several occasions during the year, although our beds have been occupied, urgent cases have been taken in for us by the courtesy of the Medical Superintendent. In October last the Manchester Corporation removed all cases from the Baguley sanatorium to the Monsall fever hospital, as they are going to convert the Baguley sanatorium into a sanatorium for consumption and now our cases are taken to Monsall fever hospital. Your Council have entered into a fresh agreement with the Manchester Corporation for the retaining of 3 beds. For cases of small-pox your Council has jointly with the Heaton Norris Urban District Council, erected a temporary iron hospital for 8 beds on the waste land near the sewage outfall works. Although quite ready for the reception of patients, it has never yet been used.

“The Barnes Convalescent Hospital send all their cases to Monsall Fever Hospital. The Royal Lunatic Hospital send their cases to Monsall Fever Hospital, or if necessary they are isolated in one of their detached houses. The Warehousemen and Clerks’ Schools have their own sanatorium for infectious disease. Their cases are also sent to Monsall Fever Hospital.

“Twenty-nine cases were sent to either Baguley sanatorium or to Monsall Fever Hospital, as compared with sixteen cases in the previous year. Of these 29 cases 3 were sent from public institutions.

“In a circular dated December, 1911, I was directed to report on the sanatorium and hospital accommodation provided by the Sanitary Authority for early, intermediate and advanced cases of phthisis. None has yet been provided, nor has your Council reserved any beds in any phthisis sanatorium. During the year I have received a circular from the County Medical Officer of Health, asking if there was any building in the district which may be converted into a suitable place for the treatment of phthisis. As far as I know, I do not think that there is.

“Several patients from this district attend the Manchester Hospital for Consumption and though there are some cases sent to Delamere sanatorium, the Board of Guardians have erected a pavilion at their Stepping Hill Hospital for patients under the Poor Law.”

COMPSTALL URBAN DISTRICT.—“The hospital accommodation for infectious cases is provided by the Hyde Infectious Hospital, under agreement with your Council. Four scarlet fever cases and one diphtheritic case were isolated at the hospital during the year.”

ELLESMERE PORT AND WHITBY URBAN DISTRICT.—“The Wirral Joint Hospital Board (to the expenses of which this Council is a contributory body) supply the necessary isolation accommodation for infectious diseases. The number of beds provided and the diseases treated are as set out under Higher Bebington.”

HOLLINGWORTH URBAN DISTRICT.—“The only isolation hospital in Longdendale is situated on Mottram Moor, the ownership being vested in the three Councils of Mottram, Hollingworth and Tintwistle. Only one case has ever been admitted and home isolation has been found to be eminently satisfactory in all cases up-to-date. The total available beds are 16 and only one disease can be concurrently treated therein.”

HOOLE URBAN DISTRICT.—“At the beginning of 1911 arrangements were entered into with the City of Chester by which in addition to the four beds retained by this Council in the City isolation hospital at Sealand, we were allowed two additional beds should occasion require, provided that in the opinion of the Medical Officer of Health, there shall remain after admission ample provision for all cases received or likely to be received from the City and that in respect of such additional patients we as a Council shall pay to the Corporation the usual maintenance charges, as fixed by existing agreement and in lieu of any retaining fee, a sum of 10/- per patient for each week, or portion of a week that such patient is in the hospital. Since these arrangements were made no difficulty has been experienced in obtaining hospital accommodation for such of our cases as required removal.”

HOYLAKE AND WEST KIRBY URBAN DISTRICT.—“The Wirral Joint Hospital Board supplies the hospitals for the above, in the form already set out (see Higher Bebington).”

KNUTSFORD URBAN DISTRICT.—“Ample. Provided by the Joint Hospital Board. We have nothing to do with administration. One case of diphtheria (the only one) and three (out of six) cases of scarlet fever, were sent to hospital.”

ISOLATION HOSPITALS.

WILMSLOW URBAN DISTRICT.—“By arrangement with the Manchester Corporation, the Bucklow Joint Hospital Board, on which the Wilmslow Urban District Council is represented, is provided with a sufficient number of beds at Monsall Hospital for cases of infectious disease (excluding tuberculosis). Seven cases of scarlet fever were removed to hospital during the year.

“The Baguley sanatorium has been converted into a sanatorium for tuberculosis by the Manchester Corporation. The Bucklow Joint Hospital Board has the use of 15 beds in this institution.”

WINSFORD URBAN DISTRICT.—Here Dr. Garstang (Medical Adviser to the Bucklow Joint Hospital Board), sets out certain important information relating to the work of that Board. “The conditions under which the districts forming the Board have access to the hospitals of the Manchester Corporation and the extent of the accommodation which they can claim, were explained in detail in my Report for 1908. During 1912 these arrangements were modified as follows:—the Baguley sanatorium will be kept for phthisis cases only and the Board has the right to occupy 5 beds, a number which may in the future be increased to 15 as a maximum. Patients who have hitherto gone to Baguley will go to Monsall Hospital at Newton Heath; and the Corporation will provide motor ambulances. The only inconvenience will be the distance and even that is only in the case of relatives visiting; and in my opinion this is more than compensated by the superior medical treatment guaranteed by the large resident medical staff.

“The year 1912 was comparatively free from epidemics. Compared with 1911 the admissions were:—

			1911.	1912.
Bucklow	...	...	75	15
Alderley Edge	...	...	1	11
Ashton-on-Mersey	...	...	10	1
Hale	...	...	11	29
Knutsford	...	...	27	4
Sale	...	...	24	6
Wilmslow	...	...	9	7
			<hr/> 157	<hr/> 73

"Thirteen cases were in hospital at the commencement of the year, making a total of 86 treated. Of these 68 were discharged, 3 died and 15 remained in at the end of the year. These latter were 4 from Bucklow, 3 from Alderley Edge, 6 from Hale, 1 from Knutsford and 1 from Wilmslow. The total number sent to hospital since December 8th, 1902, is 1,280."

MACCLESFIELD RURAL DISTRICT.—"The hospital accommodation available for infectious diseases consists of:—(1) a cottage at Greenway Sutton providing 2 beds for small-pox and (2) 14 beds for other infectious diseases at the Macclesfield Corporation Isolation Hospital.

"No cases of small-pox have occurred in your district during the year, so the Greenway Hospital has remained unopened. The ten years' lease on which the land was held having run out it is now held at a rental of £10 a year on an annual tenancy, a year's notice to terminate the agreement being required by either side.

"As a rule the beds reserved for us at the Corporation Hospital prove quite sufficient for all needs, but during the course of an epidemic of scarlet fever which occurred in Sutton, the number of patients in hospital exceeded the number of beds allotted on one or two occasions. Fortunately during that period of the year there were few cases of this disease occurring within the Borough so that provision was readily made for this emergency."

NANTWICH RURAL DISTRICT.—"The hospital accommodation provided for the district consists of the following institutions:—the Nantwich Workhouse Infirmary, Worleston; the Nantwich Joint Isolation Hospital, Worleston; the Joint Small-pox Hospital, Ravensmoor; and the Nantwich and District Cottage Hospital, Henhull. There is no accommodation for advanced cases of pulmonary consumption except the Union Infirmary. I should like to see wards for this purpose constructed at the isolation hospital; for these there is plenty of room on the site. I believe that by this action an immense saving of life, by preventing the spread of infection, would eventually be made. The small-pox hospital, though very suitable in many respects, is too far distant from Nantwich to be easily used for the purpose of isolating cases of tuberculosis.

"During the year the following cases belonging to the Rural District were treated at the Joint Isolation Hospital:—

ISOLATION HOSPITALS—DISINFECTION.

			Cases.	Deaths.
Scarlet Fever	...	...	37	2
Diphtheria ...	...	...	29	0
Enteric Fever	...	..	2	0
			<hr/>	<hr/>
Totals	...		68	2 "
			<hr/>	<hr/>

RUNCORN RURAL DISTRICT.—“Coincident with the recent very great decrease of infectious diseases has been the completion and opening of the new large ward at the Isolation Hospital, Dutton, during 1912, increasing the accommodation from 12 to 24 beds, thus bringing your hospital accommodation up to the full requirements of the Local Government Board, of one bed per 1,000 of population. It is allowed us to hope that it may never be called upon to have all its beds occupied at one time and this increase of beds is the best means of keeping down the number of cases.”

WIRRAL RURAL DISTRICT.—“The Wirral Joint Hospital Board (to the expenses of which this Council is a contributory body) supply the necessary isolation accommodation for infectious diseases. The number of beds provided and the diseases treated are set out under the extract from the Higher Bebington report.”

Disinfection.

In only very few of the Reports is any special allusion made to methods of disinfection. From what I know of these, however, I am satisfied that disinfection in practically all districts is carried out on scientific and rational lines. Of course in a number of districts no steam disinfectors are available and therefore disinfection of bedding, clothing and textile articles generally cannot be at all satisfactorily accomplished. There are plenty of reasonably cheap portable steam disinfectors to be had and there is thus no reason why every district should not possess this very essential means of checking the spread of disease. I commend to the Medical Officers of Health of those districts not yet equipped with steam disinfectors a study of this very important question.

A few extracts are given from the Reports of District Medical Officers of Health on this matter:—

ALDERLEY EDGE URBAN DISTRICT.—“The disinfection of infected houses is carried out by the District Council. The rooms are disinfected with formalin, either by fumigation or

DISINFECTION—BACTERIOLOGICAL EXAMINATION.

spraying and the walls stripped and washed down with an antiseptic fluid and afterwards re-papered or whitewashed."

CHEADLE AND GATLEY URBAN DISTRICT.—"At the end of the year 1911, owing to enquiries made by the Local Government Board as to what your Council were doing in the matter of providing a steam disinfecter, your Council made arrangements with the Stockport Corporation whereby all bedding and articles of clothing can be sent to the Stockport Corporation Disinfecting Station to be passed through the steam disinfecter. This arrangement has on the whole worked well, although at times there is some delay in taking away the articles for disinfection and I expect it will turn out to be a very expensive way of disinfecting."

MACCLESFIELD RURAL DISTRICT.—"The usual method of disinfection of the houses has been carried out in cases of infectious disease. In this connection an anomaly appears to me to exist. Where a patient is taken to hospital infected bedding and personal clothing are also removed for steam disinfection. In the case, however, of those who are nursed at home no such provision is made unless the people concerned undertake to refund the charges made by the Corporation Authorities. As—apart from the efficacy of soap and water and natural agencies—steam affords the only reliable means of disinfecting clothing, it is to be regretted that a uniform method of dealing with it cannot be adopted—especially in the case of scarlet fever."

Bacteriological Examination.

By the courtesy of Professor Delépine I am able to give a complete and recent statement as to the arrangements made by various Sanitary Authorities in the Administrative County for the examination of specimens from doubtful cases of diphtheria, typhoid fever, tuberculosis, of samples of water, milk, various food, etc., etc., in connection with the investigation or prevention of outbreaks of disease. Commenting on the list supplied (reproduced below) Professor Delépine writes:—

"With few exceptions the authorities enumerated in the list have made use of the laboratory since 1900 (many had already begun in 1898, Crewe in 1897). Those belonging to the first group are connected with the laboratory by a sort of contract. At first this contract was based upon the payment of an annual minimum fee (M.F.) based on the population—but owing to the complication which this system entailed, I

BACTERIOLOGICAL EXAMINATION.

have, in 1908, suggested an annual subscription (S.) of 1s. per 1,000 inhabitants. Nearly all the Authorities have accepted the second arrangement. Authorities which do not pay a subscription, have not the benefit of a reduced scale of fees.

"The 5 places which have not made a definite arrangement with the laboratory have nearly all made occasional use of the laboratory for 8 or 10 years."

PUBLIC HEALTH LABORATORY, UNIVERSITY OF MANCHESTER.

1. *Places in Cheshire (not including County Boroughs) definitely connected with the Laboratory (paying an Annual Subscription [S.] or a Minimum Fee [M.F.]).*

1897. Alderley Edge U.D. ... M.F.	1898. Knutsford U.D. ... S.
1899. Ashton-upon-Mersey U.D. S.	1902. Lymm U.D. ... S.
1901. Bowdon U.D. ... S.	1898. Middlewich U.D. ... S.
1901. Bredbury and Romiley U.D. S.	1903. Nantwich U.D. ... S.
1898. Bucklow R.D. ... S.	1898. " R.D. ... S.
1900. Cheadle and Gatley U.D. ... S.	1898. { Northwich U.D. ... S.
1898. Congleton M.B. ... S.	1898. { " R.D. ... S.
1909. " R.D. ... S.	1902. Runcorn R.D. ... S.
1897. Crewe M.B. ... S.	1902. Sale U.D. ... S.
1899. Dukinfield M.B. ... S.	1912. Sandbach ... S.
1900. Hale U.D. ... S.	1898. Wilmslow U.D. ... S.
1906. Hoole U.D. ... S.	1898. Winsford U.D. ... S.

2. *Places which are not definitely connected, but which send occasional specimens for examination.*

1898. Altrincham U.D.	1899. Hyde M.B.
1897. Bollington U.D.	1899. Marple U.D.
1899. Hollingworth U.D.	

Macclesfield has an arrangement for a similar purpose with the Lister Institute, and Lower Bebington Urban District Council send occasional specimens to the Johnston Laboratories, Liverpool, for examination.

Section VI.—Midwives Act, 1902.

The scheme in operation in the Administrative County for the supervision and control of Midwives has been fully described in previous reports.

At the close of the year 1911 there were 487 midwives on the County Register. During 1912 there were 51 names taken off the register for various reasons (death, removal to another county, retirement as a consequence of penal procedure of the Central Midwives Board, etc.) and 35 new names added, this bringing the net total to 471 now on the County Register.

Of those midwives whose names have been removed from the register, 24 were women who were in *bonâ fide* practice in July, 1901 and 27 were women who had undergone the prescribed training.

Of midwives whose names have been added to the register, 31 are women who have undergone the prescribed training and four were women who were in *bonâ fide* practice in July, 1901.

The number of properly trained midwives now practising in the Administrative County is thus brought up to 187, as compared with 180 for 1911, 156 for 1910 and 120 for 1909.

The number of midwives who have been trained and certified at a training school approved by the Central Midwives' Board is 39.7 per cent. of the total number on the County Register, as compared with 37.57 per cent. in 1911; 31 per cent. in 1910; 25.64 per cent. in 1909; 23.67 per cent. in 1908; and 21 per cent. in 1907. This increase in the number of trained women is most gratifying.

There have been over 150 changes of address, name, etc., notified during the year.

There are several registered midwives in the County who only act as monthly nurses and whose names consequently do not appear on the County Register. The names also of a number of nurses in infirmaries who occasionally take maternity cases, or are attached to maternity wards, are not included in the official register.

MIDWIVES.

The number of midwives residing and practising in the several districts in the Administrative County at the close of 1912 is given in the following Table:—

MUNICIPAL				BOROUGH.			
Congleton	...	...	13	Macclesfield	...	...	11
Crewe	...	...	27	Stalybridge	...	...	12
Dukinfield	...	...	14	Wallasey	...	...	52
Hyde	...	...	24				
				Total	...	...	153

OTHER URBAN DISTRICTS.

Alderley Edge	...	...	3	Hoylake and West Kirby	...	...	7
Alsager	...	...	3	Knutsford	...	...	3
Altrincham	...	...	10	Lymm	...	...	5
Ashton-upon-Mersey	...	...	4	Marple	...	...	2
Higher Bebington	...	...	2	Middlewich	...	...	4
Lower Bebington	...	...	4	Mottram	...	...	2
Bollington	...	...	4	Nantwich	...	...	2
Bowdon	...	...	0	Neston and Parkgate	...	...	5
Bredbury and Romiley	...	...	7	Northwich	...	...	14
Bromborough	...	...	1	Runcorn	...	...	12
Buglawton	...	...	5	Sale...	...	...	7
Cheadle and Gatley	...	...	4	Sandbach	...	...	6
Compstall	...	...	1	Tarporley	...	...	0
Ellesmere Port and Whitby	...	...	8	Wilmslow	...	...	5
Hale	...	...	2	Winsford	...	...	17
Handforth	...	...	0	Yeardsley-cum-Whaley	...	...	2
Hazel Grove and Bramhall	...	...	2				
Hollingworth	...	...	2				
Hoole	...	...	3	Total	...	...	158

RURAL DISTRICTS.

Bucklow	...	...	20	Northwich	...	...	22
Chester	...	...	11	Runcorn	...	...	21
Congleton	...	...	15	Tarvin	...	...	11
Disley	...	...	2	Tintwistle	...	...	1
Macclesfield	...	...	12	Wirral	...	...	13
Malpas	...	...	9				
Nantwich	...	...	23	Total	...	...	160

The total number of midwives residing in the County and whose names appear on the County Register at the close of 1912 is therefore 471.

In the following districts there are no midwives practising—Bowdon Urban, Handforth Urban and Tarporley Urban.

The following particulars are summarised from the special Reports of the Medical Officers of Health.

(a) Cases attended by Midwives.

The total number of cases attended by midwives in the Administrative County during 1912 was 9,784, a slight decrease on the figure for 1911. The total number of births registered in

the Administrative County was 14,808. It thus appears that midwives attended approximately 66 per cent. of the total births in the County. In 1911 and 1910 it was 66.6 per cent. and in 1909 59 per cent.

(b) Keeping of Case Books, &c.

In all districts practically the whole of the midwives keep case books or registers, but a very few illiterate women who cannot either read or write naturally do not concern themselves with such records. In some cases of illiteracy the midwives keep case books and registers, but rely upon the assistance of relatives and friends to keep them entered up. In one or two instances it is stated that case books are not kept or are not entered up to date.

(c) Records of sending for Medical Help.

It appears that in 1,060 cases medical help was summoned by the midwife. Taking the total number of cases attended by midwives as 9,784, this gives the percentage of cases in which they deemed it advisable to summon medical help as 10.8, a somewhat low figure.

As instancing the variations in this matter in the different districts, two extreme cases may be cited.

In Dukinfield there were 480 cases attended by midwives and 138 records of sending for medical help; whereas in Stalybridge out of 507 cases there were only 15 such records.

(d) Taking of Pulse and Temperature.

The remarks under this heading are of various characters and probably afford the best index obtainable to the capability of the midwives practising in the County.

In Congleton Borough it is reported that this is done "by those who can read and write."

In Crewe Borough it is stated that "eleven midwives have observed the rule."

In Dukinfield "ten only have observed the rule."

At Hyde the rule is "not observed by all."

In Macclesfield the reply to the query is "Yes, where the woman can read a thermometer."

From Stalybridge the answer to the query is "No."

MIDWIVES.

The Medical Officer of Health for Wallasey says that "practically all" the women observe the rule of the Central Midwives Board.

In Alsager it is stated "this is not carried out regularly by all, one does, one cannot and one takes at times."

As regards Ashton-upon-Mersey, the Medical Officer of Health replies "I do not think so."

In Bredbury and Romiley it is stated "not in all cases, but it is becoming more practised than formerly."

The two midwives in Mottram District do not observe the rule.

One of the four Middlewich women does not observe the rule.

The Nantwich midwives do not apparently take the pulse, but can "use a thermometer."

In Northwich Urban District it is stated that the results are "not always recorded."

In Sandbach it is said "that this can't be done as most of them cannot read."

One of the five Wilmslow women does not comply with the regulations.

In Winsford, the Medical Officer of Health states "No, because they are incompetent to do it."

In Chester and Malpas Rural Districts "some of the untrained midwives are still hazy about the temperature but show great improvement."

In Nantwich Rural District "the untrained women are incapable of complying with the rules."

About half the districts reply in the affirmative, but it is the general answer that the untrained women do not comply with this rule and where attempts are made to do so, too much reliance cannot be placed on the results recorded.

(e) Appliances.

It may be stated generally that most of the illiterate midwives either do not possess or cannot reliably use catheters or vaginal douches and the Medical Officers generally hold that this type of woman is better without such appliances.

The large majority of the replies to the enquiry as to whether the appliances required by the rules to be kept by each midwife are actually provided and kept clean and in good order, are in the affirmative.

(f) Means of Disinfection.

The facilities afforded in the various districts for the disinfection of midwives who have been attending cases of puerperal fever or other infectious disease, or cases in which there are foul smelling discharges, vary very considerably. For these, therefore, as well as for other purposes, it is very desirable that districts at present unprovided with means of disinfecting the clothing of the midwives practising in their areas should make arrangements to this end as early as possible. The following districts have no such provision, viz., Alsager, Ashton-upon-Mersey, Bollington, Compstall, Hale, Knutsford, Lymm, Middlewich, Mottram, Nantwich, Sale, Sandbach, Winsford, Yeardsley, Bucklow Rural, Congleton Rural, Disley Rural, Macclesfield Rural and Tintwistle Rural.

(g) Puerperal Fever.

In 12 cases throughout the whole of the Administrative County cases of puerperal fever are known to have arisen in cases attended by registered midwives. The Medical Officers of Health have uniformly carried out the most rigorous measures on the occurrence of such disease in the practice of a midwife.

(h) Penal Procedure.

Nine cases of breach of rules of the Central Midwives' Board while in attendance on lying-in women were reported to the Midwives Act Committee during the year and the names of 4 women were removed from the Roll consequent on proceedings which followed. One woman concerned gave up her certificate and the remaining cases were cautioned as to their future conduct.

(i) Shortage of Supply.

This is said to be the case in the following district:—

NANTWICH URBAN DISTRICT.—“There is a distinct shortage of midwives in this district, there are really only two residing in the district who practice in it and are available for a population of nearly 8,000. It is disappointing to find that the restrictions of the Act do not attract young well-educated women to replace the old type of midwife.

The combination of district nursing with midwifery is aiding largely the solution of this problem of shortage. In many areas

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there is not enough work to maintain a woman who depends on midwifery alone. Work under the Notification of Births Act would be most appropriate for properly trained midwives.

(j) Puerperal Septicæmia.

CONGLETON MUNICIPAL BOROUGH.—“The one case notified was attended by one of the midwives, but it was thought she was quite blameless. The house was dirty and in a bad sanitary state in other respects and the woman's mother, who had lived in the house for many years, had all the time suffered from extensive ulceration of one of her legs, the wound being always in an offensive or septic condition. Some years before, another daughter, confined in the same house, under the same conditions, suffered in the same way and died. The midwife ceased attending cases for some time after and was disinfected, as well as her clothing and appliances. Thirty years ago, three or four cases of this kind in twelve months would not have excited remark, but of late years the town has been so free from such cases that when one occurs it is felt necessary to offer some apology, or give some satisfactory explanation of its occurrence, else it would have been, perhaps, unnecessary to say so much of this one.”

The following are some of the important additions and alterations contained in the Revised Rules, issued in 1911 by the Central Midwives' Board.

1. Every midwife must keep her nails cut short and preserve the skin of her hands as far as possible from cracks and abrasions.
2. When attending to her patients she must wear a clean dress of washable material that can be boiled, such as linen, cotton, &c., and over it a clean washable apron or overall. The sleeves of the dress must be made so that the midwife can tuck them well up above the elbows.
3. The bag or basket containing appliances must be furnished with a removable lining which can be disinfected.
4. Efficient antiseptics for such purposes as :—
 - (a) Disinfecting the hands ;
 - (b) Douching in special cases ;
 - (c) Cleansing the infant's eyelids—must be taken by the midwife to all confinements.

NOTE.—For disinfecting the hands and appliances the midwife may use Perchloride of Mercury, 1 in 1,000, Lysol, 2 teaspoonfuls to one quart of water, Izal, 2 teaspoonfuls to one quart of water, &c.

For douching Perchloride of Mercury should not be used except under medical advice; Lysol or Izal (one teaspoonful to one quart of water) is to be employed.

For cleansing infant's eyes Boracic Acid (2 ounces Powdered Boracic Acid well shaken up with a quart of boiling water until all is dissolved) is to be used. See pages 42–3 of New Rules as to method of using Boracic Acid for bathing child's eyes.

As a lubricant to be used for the hands, &c., Glycerine of Perchloride of Mercury, 1 per 1000, is the best. If ointments are used they should be obtained in collapsible tubes, and the caps kept properly screwed on.

The midwife's bag should be disinfected once a week (including the handle) by sponging it carefully out with Perchloride of Mercury, 1 per 1,000; the lining should be changed at least once a week, and at once if soiled.

5. If a midwife has been in attendance whether as a midwife or as a nurse upon a patient, or in contact with a person suffering from puerperal fever or any other condition supposed to be infectious, or is herself liable to be a source of infection, she must disinfect herself and her appliances, and must have her clothing thoroughly disinfected *to the satisfaction of the Local Supervising Authority* before going to any other maternity patient.
6. For washing the patient's external parts the midwife must use material which has been boiled or otherwise disinfected before use.
7. If a midwife should for any reason continue her attendance after the tenth day the fact must be noted in her register with the explanation of the reason.
8. *The midwife shall take and record the pulse and temperature of the patient at each visit.*
9. In the case of a child born apparently dead the midwife must carry out the methods of resuscitation (or reviving) which have been taught her.

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10. As soon as the child's head is born and if possible before the eyes are opened, its eyelids must be carefully cleansed (see Rule as to method of cleansing).
11. After laying out or assisting to lay out or prepare a dead body for burial, every midwife must notify the Medical Officer of Health for the district and must undergo adequate cleansing and disinfection as under paragraph 5.
12. Medical help must be advised on the proper form filled up and handed to the husband or nearest relative or friend present in the following cases in addition to those mentioned in the old Rules :—
 - (a) In case of a pregnant woman when there are any of the following complications :—
 - Fits or convulsions.
 - Purulent (or mattery) discharges.
 - Sores or the genitals.
 - (b) During labour when there are any of the following complications :—
 - Fits or convulsions.
 - A purulent (or mattery) discharge.
 - Sores of the genitals.
 - (c) During lying-in when fits or convulsions take place.
 - (d) In the case of the child when there is any discharge from the eyes however slight.
13. The form used for notification of still-births has been slightly altered and it is necessary now for the midwife to state in that notification whether the still-born child was delivered by her or was born before her arrival.
14. Midwives must afford officers of the Local Supervising Authority every reasonable facility for inspection of registers, bag of appliances, place of residence, &c.
15. *Midwives are now liable to be suspended from practice by the Local Supervising Authority, when such is necessary for preventing the spread of infection, whether the midwife has contravened (or broken) any of the Rules laid down by the Central Midwives' Board or not.*
16. The new Rules contain highly important instructions as to precautions to be observed in inflammation of the eyes in

new-born children and cancer of the womb and every midwife should at once make herself familiar with these instructions.

The Board conclude with the following stern announcement :—

“The Central Midwives’ Board is determined as far as lies in its power to secure the strict observance of its Rules and Directions *and to punish any failure to comply with them even in cases where no harm can be proved to have followed from their neglect.*” (The italics are my own).

Section VII.—Water Supply.

The extracts from Annual Reports which I submit herewith give a fairly complete statement of the existing water supplies in the Administrative County. It will be seen from these that Cheshire is in a fairly fortunate position in this respect. This is due to the fact that, geologically and physically speaking, Cheshire is well situated. The triassic rocks (new red sandstone) are excellent water-yielding strata and they virtually extend over the whole of the Cheshire plains. The water from this formation is usually bright, colourless, wholesome and palatable, though apt to be hard owing to the presence of the sulphate and carbonate of calcium.

In the east of the County running up from Congleton to Stockport and Hyde the geological formation is millstone grit, coal measures and a little mountain limestone: from millstone grit and mountain limestone only little water is available by reason of the impermeability of the strata and what little is obtainable is got from springs and varies a good deal in character. Surface supplies are available however and if the dangers of lead-poisoning and discolouration due to peat are sufficiently guarded against, these are usually excellent for domestic and manufacturing purposes.

In certain districts, or portions of districts, there is an inadequate supply, as, for example—

Nantwich Rural District, where the townships of Wrenbury, Newhall, Dodeott-cum-Wilkesley, Audlem, Hankelow, Buerton,

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Baddington, Coole Pilate, Ansterson, Hunsterson, Hatherton, Checkley-cum-Wrinehill, Sound and Broomhall, are without a proper supply.

Runcorn Rural District. It is stated that 26 out of the 40 townships in this district have excellent public supplies, the remaining townships being mainly supplied by pumps and wells which are, generally speaking, of fair quality and quantity: "one or two of these supplies are under consideration for improvement."

Northwich Rural District. Here the parishes of Byley, Whatcroft and Rudheath are inadequately supplied and a scheme is in hand to remedy this state of affairs. The Allostock district is also engaging the attention of the Council.

Tarvin Rural District. The supply is inadequate in Farndon, Burwardsley, Broxton, Tilston and Harthill. Kelsall is, in my opinion, only indifferently served with water.

Nantwich Urban District. Here there is a very indifferent supply both as to quality and quantity, but trial borings are being made for a new supply.

Tarporley Urban District. Rushton village and some cottages in Utkinton are somewhat inadequately supplied.

Wirral Rural District. Irby Mill Hill and Pensby are by no means well off for water.

In a number of other districts reference is made to the inadequate supply of houses lying at a distance from the water-mains where the connection of the main to the houses is not practicable owing to the cost.

No one realises more than I do the many difficulties attending the supply of a constant service of water in rural areas and the careful consideration which is given by Rural District Councils to this matter. But there is one case calling for action on the part of your Council, where, in my opinion, sufficient determination has not been displayed by the Council concerned and that is the case of Audlem and a number of adjoining townships in the Nantwich Rural District. Here the matter has been delayed for one reason or another for many years despite the very urgent recommendations of the Medical Officer of Health and I think the time has come for pressure to be exerted by your Council.

I submit the observations of the several Medical Officers of Health on this question.

CONGLETON MUNICIPAL BOROUGH.—“This Borough derives its supply from springs in the quicksands on the west side of the pumping station at Forge Lane within the Borough. It is stated that there are only a few isolated farms in the district which are not supplied from the mains.”

CREWE MUNICIPAL BOROUGH.—“The water supply is owned by the London and North Western Railway Company, and is obtained from artesian wells at Whitmore, Staffordshire. The quality of the water for drinking purposes is excellent, although somewhat hard for domestic and laundry use. The supply has never failed even after the most prolonged drought.”

DUKINFIELD MUNICIPAL BOROUGH.—“The domestic water in Dukinfield is excellent in quality and abundant in quantity. During the dry summer of 1911 there was no shortage. Dukinfield is joint owner of the Waterworks in the Swineshaw and Chew Valleys, together with the Boroughs of Ashton-under-Lyne, Stalybridge and Mossley. The present capacity of the reservoirs owned by the Joint Waterworks Committee is about 900 million gallons and when the new reservoir in the Chew Valley is completed it is estimated that the capacity will be increased by 200 million gallons. The water, at present, comes from the wells, springs and streams in the Swineshaw Valley and is free from any risk of pollution. The water is soft, but during the year 1912 the whole of the domestic supply of water for this district has been filtered and treated, the method of treatment being carried out on most modern scientific principles. Two filter houses have been opened at Swineshaw and Chew Valley respectively.

“Fourteen out of 17 farms are supplied direct from the public mains on the constant system, the remaining three from a private reservoir belonging to the estate, fed by a hydraulic ram and constructed at an elevation sufficient to give a constant supply.”

HYDE MUNICIPAL BOROUGH.—“The water supply is obtained from the reservoirs of the Manchester Corporation, situated at Woodhead. The supply for trade purposes is obtained from the reservoirs belonging to the Corporation, situated at Gee Cross.”

STALYBRIDGE MUNICIPAL BOROUGH.—“Along with the neighbouring boroughs of Ashton-under-Lyne, Dukinfield and Mossley, Stalybridge is supplied with an abundance of pure water from

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extensive reservoirs which have a holding capacity of close upon 900,000,000 gallons and the work of constructing a large reservoir in the Chew Valley for water for compensation purposes is proceeding rapidly. This new reservoir will have a capacity of about 200,000,000 gallons. Its gathering ground is 1,730 acres in extent and has an elevation of 1,750 feet.

“The supply to Stalybridge is almost wholly derived from the Brushes Reservoir, but portions of the borough, namely, Heyrod, Hough Hill and the district of Mottram Road above Bower Fold are supplied from the Lower Swineshaw Reservoir, which also supplies the adjacent Borough of Mossley. The gathering ground at Swineshaw is 1,300 acres in extent and has an elevation of 884 feet. The Higher Swineshaw Reservoir has a depth of 53 feet, and a capacity of 168,908,000 gallons and it supplies both the Lower Swineshaw Reservoir and the Brushes Reservoir.

“On September 19th, 1912, the filter installations which I mentioned in my previous report were opened—one at the Brushes Reservoir and the other at Ashway Gap—so that the whole of the water distributed from the Swineshaw and Greenfield Valleys is now freed from suspended matter and also has its acidity neutralised so as to render it incapable of absorbing lead and insidiously causing lead poisoning.

“During the past year no case of lead poisoning attributable to the town's water supply has been brought to my notice.”

WALLASEY MUNICIPAL BOROUGH.—“The water supply of the borough is partly from wells in new red sandstone, 320 to 900 feet deep, reinforced by a supply of 750,000 gallons per day from Lake Vyrnwy, upland surface water. No filtration is necessary. The service is a constant one and the supply ample and pure.”

“The volume of water supplied from 1st January, 1912, to 31st December, 1912, was 909,074,231 gallons, made up as follows :—

From Wells at Liscard	...	...	599,274,231	Galls.
From Vyrnwy	...	...	309,300,000	„
Average supplied per day	...	...	2,483,809	„
Average consumption per day per head	...	...	31.05	„
Divided as follows :—				
Supplied by Meter	...	5.87	Galls.	
Supplied to Shipping	...	.14	„	
Watering Streets and Road Making	...	.23	„	
Flushing Sewers by Hose and Cart	...	.30	„	
Domestic and other purposes, including Drinking Fountains	...	24.71	„	

“The quantity of water used for flushing sewers and drains during the year was 8,739,300 gallons.”

ALDERLEY EDGE URBAN DISTRICT.—“The water is supplied by the Stockport Corporation and comes from the waterworks at Wilmslow from boreholes in the new red sandstone and is treated by a softening process. Part of the supply has, during 1912, come from their new reservoir at Kinder. The supply during the year was ample.

“A new and larger reservoir is in course of construction at a higher level than the present one at Alderley Edge. This will be completed in about two years. This will give a better pressure of water to those houses which are situated at the top of the Edge. Samples of water were analysed during the year and the same was found to be first-class water of great purity, fit for domestic use and free from suspended matter. Special analysis was made for effect on lead and no trace of any such action could be found.”

ALTRINCHAM URBAN DISTRICT.—“The water supply is derived from Manchester, through the agency of the North Cheshire Water Company and is continuous, abundant and good.”

ALSAGER URBAN DISTRICT.—“The Alsager and Linley water supply is from the same source as I reported last year, *i.e.*, the local supply supplemented by water from the North Staffordshire Waterworks. This has been sufficient to supply the place.

“In March, two samples were sent for analysis, one from No. 2 Well and one from the tube in that well. The report of result of the analysis, described the former as “a very hard water, but four-fifths of the hardness can be removed by lime. It would then be a first-class water.” Of the latter, it remarks “When the suspended matter is removed by filtration, it is then a very hard, but first-class water and fit for domestic use.

“The reports of these analyses are similar to what have been received before.

“The site of the new water supply is on the “Oak Farm,” situated on high ground at the southern side of the village. The site was chosen by Mr. Soame, the Expert Engineer engaged for the work by the Council.

“The loan of £500 for experimental boring having been granted to the Council by the Local Government Board, the

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work was officially and publicly commenced on April 16th, by the Chairman and Members of the Council. It has been energetically proceeded with to a depth of 499 feet; this was tubed for 300 feet. The strata pierced can be roughly described as marl and sandstone for about 260 feet and sandstone for the remainder of the distance. The yield of water has been tested and found satisfactory, 10,000 gallons per hour from a depth of 32 feet having been obtained. This supply is computed to easily meet the demands of Alsager and district. The preliminary work towards connecting up is being pushed forward by the Council.

"Samples of the water were sent for analysis from a depth of 200 feet on October 18th. The reports of the Analyst show that the water is softer than the present local supply. He remarks on the one sample:—'This is a first-class water, of a high degree of purity and fit for domestic use.'"

A Local Government Board Inquiry has recently been held (June, 1913), into an application for a loan for this new supply.

ASHTON-UPON-MERSEY URBAN DISTRICT.—"The water is supplied by the Cheshire Water Company, which gets its water from the Corporation of Manchester, chiefly from Woodhead; there is also, in case of necessity, a supply from Thirlmere. The water during the year has been sufficient in quantity and good in quality."

HIGHER BEBINGTON URBAN DISTRICT.—"The district has a constant supply of water provided by the West Cheshire Water Company. The hardness of this water, which is derived from wells in the new red sandstone, has been a cause of complaint amongst the consumers for many years. As the result of the West Cheshire Water Act, 1911, the district is to be supplied with water which is less than half as hard as that formerly provided. The introduction of softened water has taken place during the last week or two as the Water Company obtained a three months' extension of the time allowed them under the Act to carry out the necessary works."

BOLLINGTON URBAN DISTRICT.—"The district is supplied with water from two boreholes. These are situated at Lowerhouse—altitude 794 feet and Dane Bent—altitude 750.75 feet, in the neighbouring district of Rainow. The depth of the borehole at Lowerhouse is 210 feet and of that at Dane Bent 164 feet. They are both very free from contamination.

No bacteriological examination of the water has been made during the past twelve months, but it may be well to repeat the last two paragraphs of the report submitted by Messrs. Grace, Calvert and Thompson on the examination made by them in March, 1911. They say:—

“The bacteriological examination bears out the results given by the figures of the analysis and they indicate that there are very few bacilli of any kind present. The “Dane Bent Water Supply” being quite remarkable in this respect, whilst the “Lower House Water Supply” although containing 5 times as many organisms (which developed on Nutrient Gelatine) as the “Dane Bent Water Supply” yet contains less than half the number present in Manchester water taken from the laboratory tap.

Both samples may be regarded as free from *Bacillus Coli* and consequently as being free from sewage pollution and both are satisfactory for drinking purposes.”

“As to sufficiency—previous reports of your Medical Officer have called attention to this very important matter and it is gratifying to be able to report that the Water Committee has at last taken it up. During the summer a pump has been fixed at the Dane Bent borehole, where there was undoubtedly a great leakage. The result of this has been to increase the yield from 1,400 gallons per hour to 3,800 gallons per hour. A continuous test of this was made over a period extending to 7 days, when the result was found to be equally satisfactory.”

BOWDON URBAN DISTRICT.—“The water is chiefly supplied by the North Cheshire Water Co. and is good, constant and abundant.”

BREDBURY AND ROMILEY URBAN DISTRICT.—“Our chief supply is from the Manchester Corporation reservoirs at Woodhead. This is a very good drinking water, but complaints have been made of a yellowish-red sediment being found in it at times. This is a fine peat fibre and is not injurious to health. It is unsightly when in excess, but is readily removed by simple filtering, or by standing. A further supply has been obtained and a new main, as mentioned in my last report, has been laid from the Stockport New Kinder Works, along Dooley Lane and Barrack Hill. This gives us an abundant supply and at a higher level than the Manchester reservoirs. It is now complete and was opened early in 1912. It is a clear, wholesome drinking water and is much appreciated.”

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BROMBOROUGH URBAN DISTRICT.—“There is a constant supply of water from wells at Hooton, in the new red sandstone owned by the West Cheshire Water Company. This Company entered into a compact with the consumers to lessen the hardness of the water provided. By the agreement the water supplied after 1st November, 1912, was not to exceed 10 degrees of hardness, but the Company later received permission to delay the use of the softening process until the beginning of 1913. At the present time water from which much of the hardness has been removed has been supplied, but only periodically as far as can be gathered from expressions of opinion among the users. Bromborough Pool area is supplied from Messrs. Price’s deep wells.”

CHEADLE AND GATLEY URBAN DISTRICT.—“The water for the district is supplied by the Stockport Corporation and is sufficient for the needs of the district. There was no curtailment in the supply during the year, nor was there any extension of the main.”

COMPSTALL URBAN DISTRICT.—“The water supply for the urban portion of the district is abundant and is of good quality. It is obtained from upland springs and stored in two reservoirs, from whence it is conveyed by mains to the houses. The reservoirs are cleaned and limed every year. The supply is a constant one. Provision is made for turning the water before it reaches the reservoirs in times of flood.

“The rural portion of the district is supplied by springs and wells. These have been inspected regularly and found to be free from contamination.”

ELLESMERE PORT AND WHITBY URBAN DISTRICT.—“The West Cheshire Water Company provides a constant supply of water which is derived from deep wells in the new red sandstone. The hardness of this water was a frequent cause of complaint among the ratepayers and the West Cheshire Water Bill was opposed in consequence. As a result the Company was compelled to undertake works for the softening of the water before its delivery to the consumers. These works were to be completed and in operation by 1st November, 1912, but before that date the Company had obtained an extension of time for carrying out their undertaking. A large water tower is in process of construction in Whitby and on its completion it is anticipated that a much better supply will be obtained. There is urgent need that this work should be pressed on, as at my housing inspections I receive numerous complaints that

the supply to w.c. cisterns is anything but adequate. Some consumers complain that the flush cisterns are empty the whole day through, a condition of affairs which demands rectification at as early a date as possible. The County Council is the authority entrusted with powers to enforce the carrying out of the West Cheshire Company's Act and a representation might be made to it with advantage."

HALE URBAN DISTRICT.—"The water supply to practically the whole of the district is from the Manchester Corporation Reservoirs at Woodhead and is satisfactory. Four houses only in the district are dependent for their water upon springs. During the year no new supplies have been laid on."

HANDFORTH URBAN DISTRICT.—"The water comes from the Stockport Corporation Waterworks and is good as regards quality and quantity."

HAZEL GROVE AND BRAMHALL URBAN DISTRICT.—"The completion of the Kinder reservoirs has enabled Stockport to give a fuller supply of water and the quality of the water supplied to this district is very good."

HOLLINGWORTH URBAN DISTRICT.—"Hollingworth has a very satisfactory water supply in a spring rising high up the Arnfield Clough, and nearly all the houses in the main street and streets off it are supplied from this source, connected by short service pipes, which are well tinned and no trace of lead has ever been detected in the water. Analysis has repeatedly shown the water to be of exceptional purity. In parts not supplied with the public service nearly every dwelling is in possession of a satisfactory private supply of drinking water. In the quarterly report for September, 1912, the Council was reminded of the importance of safeguarding and maintaining any supply of spring water to which time or other circumstance might have given the public a right and I understand that this matter is receiving their most careful attention."

HOOLE URBAN DISTRICT.—"There is an ample supply of good water, the whole of the district being supplied by the Chester Waterworks Company."

HOYLAKE AND WEST KIRBY URBAN DISTRICT.—"The entire district is well supplied with water by the Hoylake and West Kirby Gas and Water Co., Ltd. The source of supply is deep wells in the new red sandstone at Grange Hill and Newton. The analyst to the Company reports that an examination of a

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sample of the water in June, 1912, had the following composition:—

Expressed in Parts per 100,000.

Total Solid Matter in Solution	...	...	...	34.2
Oxygen required to Oxidise in 15 minutes	...	...	...	None
" " " 3 hours	...	...	...	"
Ammonia	...	...	...	...
Ammonia from Organic Matter by distillation with Alkaline Permanganate	...	...	...	...
Nitrogen as Nitrites	...	...	...	...
Nitrogen as Nitrates	...	...	...	0.36
Combined Chlorine	...	...	...	6.3

HARDNESS.

Expressed in Degrees.

Temporary Hardness	...	...	...	7.7
Permanent Hardness	...	...	...	5.9
Total Hardness				13.6

"The sample was clear, bright, colourless, odourless and contained no organisms or pathogenic germs. It was free from lead and copper and from solid matter in suspension. The water is in every way an excellent one for drinking and domestic purposes."

KNUTSFORD URBAN DISTRICT.—"The water supply has been the subject of much special inspection and report for many years. A special plant for ozonising the water has been erected, under the advice of Professor Delépine. The quality is therefore probably better at the present time than ever before; but I have no official information."

LYMM URBAN DISTRICT.—"The water supply is in the hands of a private company and is laid on throughout the district where possible, that is with the exception of a few outlying farms and cottages. The supply, derived from artesian borings, is pumped up to a water tower for delivery under pressure. The supply is constant and there was no shortage even during the most trying summer of 1911. Analysis gives the result of a good, potable water. The negotiations for the purchase of the water supply by the Sanitary Authority are now well advanced."

MARPLE URBAN DISTRICT.—"The water supply of Marple is from Lyme, Cheshire, reservoirs and belongs to the Stockport Corporation. It is now obtained from the new Kinder

waterworks, the consumption amounting to 26,000,000 gallons. The quality of the water is good, but some of the old pipes are becoming incrustated and will require renovating. No complaints have been made as to impure springs or wells this year. The water mains have been extended on Ley Hey Park and Nab Top Lane. Dooley Lane is still without a proper supply."

The Surveyor writes:—"The water supply is now obtained from the Stockport's new works at Kinder and the consumption amounted to 26,000,000 gallons. No serious difficulty has been experienced with the water supply during the year, the consumption has been normal, the underground waste has been carefully watched, for which purpose ten night inspections have been made, with the result that 37 underground leakages have been located and repaired. In addition to underground leakages, 35 above-ground leakages and 307 defective taps have been located and repaired.

"Considerable attention has been given to suspected water meters, 115 of such meters having been tested, of which only four were found to be recording correctly, the number of tests made during the year being 264.

"Some of the water mains, which were laid in 1884 when the water works were installed, are now so badly incrustated that the capacity of the pipes is reduced by two-thirds. These mains should either be replaced by new or should be scraped."

MIDDLEWICH URBAN DISTRICT.—"There is a good and plentiful supply of excellent water to nearly every house in the district, only six houses, situated a long way from mains, are not supplied with water from the Town's supply."

MOTTRAM URBAN DISTRICT.—"The district has an excellent water supply derived from springs near Arnfield. I have analysed it and find it quite free from organic or inorganic impurities. A number of complaints have been made to me that the water was very often muddy, &c. I reported the matter to the Water Inspector, who attended to the matter. It may be that the pipes in certain districts want renewing or flushing oftener."

NANTWICH URBAN DISTRICT.—"Owing to the excessive amount of rainfall, it was found possible to keep the district supplied with water from the Baddiley Waterworks without resorting to temporary pumping operations as happens in the event of a dry season.

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"The work under the contract for sinking the new Well, &c., at Madeley, was suspended owing to the strata met with differing from what was shewn on the Geological maps of the district, which were proved to be incorrect by means of a trial bore-hole carried down to a depth of over 400 feet, at which depth it was still in the Keuper Marl. Under these circumstances the Engineers advised the abandonment of the site and negotiations were entered into and another site was eventually acquired on the same estate about half a mile further to the east. A trial bore-hole is at the present time being sunk there, which indicates that the new site will be suitable for the proposed works."

NESTON AND PARKGATE URBAN DISTRICT.—"The water supply is the property of the Council, who charge a very low rate for its use to the consumer. It is pumped from a deep well in the new red sandstone and distributed by gravitation. The supply is a constant one. The water is described by the Analyst as a hard, but first-class water. It has 13 degrees of hardness before boiling and this is reduced to 4 degrees by boiling.

"No new mains have been laid, but very extensive repairs have been carried out to rectify leakages, which were large enough to cause diminution in the total supply available.

"The depth of water in the well is reported to be 28 feet against a depth of 23 feet a few years ago.

"The ten new houses built during 1912 were all connected with the public supply.

"There are four cottages in the district which are not supplied by you, viz.:—two cottages from a surface well and two from springs. There are also three cottages which do make use of the public supply, but have to carry the water about half a mile.

"The consumption of water in 1912 was 62,142,000 gallons against 65,170,000 gallons in 1911."

NORTHWICH URBAN DISTRICT.—"The water supply is entirely (for dietetic purposes) derived from Cote Brook via the Heyeswood reservoir: and there has not been any shortage during the year. The supply runs to about 440,000 gallons per diem; giving some 20 gallons per head per diem. There is considerable loss at times from leakage caused by subsidence

breaking the joints and pipes and considerable activity has been necessary to prevent waste during the year.

"There is a supply of some 28,000,000 gallons per annum from the old Wade Brook supply, but as this is almost entirely used for railway purposes, it cannot be fairly reckoned in the town's supply.

"The increase of water closets and baths necessitates a greater supply than is available at present.

"In fact a series of dry winters would probably cause a "tightness" of water in dry weather with the present supply and an extension of the present catchment or an auxiliary supply is a matter requiring earnest consideration.

"The Cote Brook water is of undoubted purity but exceedingly hard. The whole district is supplied from Cote Brook by the Council's mains. No samples have been taken during the year."

RUNCORN URBAN DISTRICT.—"The water supply in the district is quite abundant and of good quality and no complaint of any shortness has reached me."

SALF URBAN DISTRICT.—"The water supply is satisfactory and the district generally is fully supplied with good water."

SANDBACH URBAN DISTRICT.—"The water supply comes from an upland source by two mains 10in. and 7in. one being used at a time. It is taken to the waterworks and treated with Clarke's process and is a constant supply. It has proved itself to be a very sound water in every way."

TARPORLEY URBAN DISTRICT.—"This district is supplied by the Liverpool Corporation from their Lake Vyrnwy supply, the water mains passing through this district. The outlying parts are supplied by springs, dip-wells and ordinary wells. All the supplies are constant and wholesome and fairly free from the risk of pollution. The Vyrnwy water is a very soft water and iron pipes are in general use. No contamination of the water by lead has occurred. No extensions have been carried out during 1912 and the district is well supplied with water, except Rushton village, which is about 300 yards away from its water supply and the same applies to seven cottages in Utkinton Lane."

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WILMSLOW URBAN DISTRICT.—“The new works at Kinder belonging to the Stockport Corporation were opened during the year and the district is now supplied from this source. The supply is constant, good and ample for all needs. No softening treatment is required. Some parts of the rural area are supplied from wells. No complaints were made during the year. A sample of water from the old works was analysed on account of turbidity. The report was favourable.”

WINSFORD URBAN DISTRICT.—“The water supply is obtained from Little Budworth and is spring water gathered and conducted through a 10in. pipe to a reservoir situated in Whitby's Lane, in Over, with a capacity of one and a half million gallons. The total yield is 242,610 gallons per 24 hours. The quality is excellent. The supply is constant.”

YEARDSLEY-CUM-WHALEY URBAN DISTRICT.—“The water supply of the district continues satisfactory. After the complete examination of the water supplies during last year, it was considered unnecessary to take samples for analysis this year.”

BUCKLOW RURAL DISTRICT.—“Most of the houses at Dunham Woodhouses are now supplied by a new extension of the mains of the North Cheshire Water Co. The remainder will be supplied almost immediately. A small private supply has been developed by the Mere estate and 23 houses now have a continuous service.”

CHESTER RURAL DISTRICT.—“This district is supplied by the Chester Water Company, by the Wrexham Water Company and by the West Cheshire Water Company. The out-lying parishes are supplied by springs, dip-wells and ordinary wells. These waters are fairly wholesome and sufficient, except in the parishes of Dunham Hill and Mickle Trafford and Ince. The water supply of Dunham Hill is practically settled, arrangements having been made with Runcorn Rural District to supply from their waterworks at Helsby. Ince is still under consideration as you will see from the following report which I made to you in November:—

INCE WATER.

I beg to report that pumping began at the Bore Hole, Ince, about 1 p.m. on November 6th at between 150 and 200 feet down. From the commencement they pumped at the rate of 3,798 gallons per hour. After 24 hours pumping I took samples for Chemical and Bacteriological analysis.

I. *Result.* Chemical.—This is a hard but good water and fit for domestic use.

Bacteriological.—Unfortunately this was two days on journey and of course useless.

I again took samples on November 14th after eight days pumping. The quantity, day and night, was about the same without lowering the water in the bore in the slightest.

II. *Result.* Chemical.—This is a first-class water, even better than the sample of November 7th.

Bacteriological.—This sample was lost.

On the thirteenth day I took further samples and did not trust to the railway for the bacteriological sample but took it myself to Professor Delépine.

III. *Result.* Chemical.—This is a very hard but first-class water, ten times as hard as the Manchester. Dr. Carter Bell says, "It would not be convenient to use such hard water."

Bacteriological.—After three examinations 168 colonies in one gramme, six being clearly recognisable but no *B. coli* 100 cc; first class.

"It would be advisable on the face of this report for your Council to make similar arrangements for Ince with the Runcorn Rural District as you have done for the Dunham Hill water supply. No contamination of the water by lead has occurred. Eleven samples of water were analysed chemically and six bacteriologically."

CONGLETON RURAL DISTRICT.—"In most parts of the district the supply is good. Holmes Chapel is well supplied though the pressure has been rather weak. Odd Rode parish is well supplied and Hassall Green is going to be linked up with this water and will at last have a continuous supply."

MACCLESFIELD RURAL DISTRICT.—"As might be expected in a rural district comprising villages, isolated farmhouses and scattered cottages, the sources of the water supplies are extremely varied. Some parts of the area adjoining urban districts with water undertakings receive supplies from them. Thus Chorley, Great Warford and Woodford to some extent are

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directly supplied by the Stockport Corporation; Upton, Prestbury, Tytherington, Butley and Adlington obtain water from the Macclesfield Corporation under Section 61 of the Public Health Act, 1875; whilst water is conveyed to Eaton from Buglawton Urban District Waterworks.

“Other parts of the district are provided with water from the supplies of private owners—559 houses in Poynton being supplied from waterworks owned by Lord Vernon—but the large proportion of the inhabitants in the more rural parts are dependent upon springs and shallow wells in the vicinity of their dwellings.

“During the year 340 yards of water mains have been laid in Prestbury, 600 yards in Upton, 975 yards in Sutton and 55 yards in Taxal.

“The proposal to borrow £1,700 wherewith to construct waterworks in Taxal has been sanctioned. This work is to be executed at once in order to be prepared for the possibility of failure of the supply from the neighbouring district of Chapel-en-le-Frith.”

MALPAS RURAL DISTRICT.—“This district is supplied largely from the Liverpool Corporation main. The main runs through the town of Malpas which it supplies, also the parish of Bickley. Other parishes are supplied from public and private wells. The supply is constant and there are no complaints as to action on lead. There is a sufficient supply and the wells are fairly free from the risk of pollution. Two samples of water were chemically analysed during the year.”

NANTWICH RURAL DISTRICT.—“The extensions of the Council's mains in Bunbury, Burland and Faddiley are now completed. No real advance appears yet to have been made in the supply of water to Audlem and the neighbouring townships.

“I must again urge upon the Council the necessity of pushing on with this highly necessary work.

The Surveyor writes:—“The water mains in Brindley, Burland and Faddiley were completed during the year. The sanction of the Local Government Board was also obtained for an extension of the water mains at Hamer Green, which has been carried out. Some new water mains have also been laid in the townships of Wybunbury and Shavington in

order to supply houses in those townships from their own mains instead of from the mains of adjoining townships. The total length of mains laid during the year was 15,880 yards, which, added to the length of mains previously laid, gives a total of 307,338 yards or 174 miles 1,098 yards now laid in this Rural district. During the year 78 houses were connected to the water mains, which makes a total of 3,740 houses now supplied by the mains of this Council. The quantity of water consumed throughout the district during 1912 was 75,656,000 gallons and in addition to this 1,095,000 gallons were supplied to Bickley for the Malpas Rural District Council, as compared with 82,288,000 gallons and 1,460,000 gallons respectively the consumption for 1911; which shows a reduction in our district of 6,632,000 gallons and in Bickley of 365,000 gallons, or in round figures about 7,000,000 gallons. This reduction is partly accounted for by the fixing of private meters and partly by reason of the summer not being so dry as in 1911. The consumption of water per house per day was 55.4 gallons and the consumption per head per day 10.0 gallons for the whole district.

"Negotiations are now being carried on with Lord Tollemache's Trustees for extensions to the Blackhurst, Woodhey Hall and the Holywell farms.

"The scheme for the water supply of Audlem and district has advanced a step during the year. Surveys have been made and levels taken and plans and estimates prepared for the supply of the following townships:—Audlem, Hankelow, Hatherton, Buerton, Coole Pilate, Newhall, Wrenbury, Sound, Dodcott, Broomhall, Woodcote, Austerson and Baddington. These are now under the consideration of the Council. Arrangements have been arrived at and terms settled with Lord Combermere for the supply of the Combermere Estate.

"During the year about fifty private meters were fixed in Cholmondeley, Brindley, Faddiley, Burland, Haslington, Shavington, Willaston, Worleston, Church Coppenhall, Weston and Chorlton. As mentioned above the fixing of these private meters has no doubt had a great effect in reducing the total quantity of water consumed in the district."

NORTHWICH RURAL DISTRICT.—The Medical Officer of Health writes:—"An excellent resumé of the water supplies throughout the district is given in the Surveyor's Report; the new work during the year comprising:—(1) a 2-inch main from Sandiway waterworks as a supplemental supply for

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Weaverham and Acton; (2) a new main to supply one farm and three cottages at Sproston; and (3) a new main to supply two salt works at Kinderton.

"In the Inspector's report will be found details of the samples taken, 27 in number, with the results and actions resulting therefrom.

"These reports show that this branch of the work has been dealt with energetically and fully by the Council: and there is now under consideration a scheme for extension to two farms and six cottages at Cuddington: also a large scheme for supplying Rudheath, Byley and Whatcroft, which only now awaits the sanction of the Local Government Board. A part of the district where considerable shortage of water occurs and which depends largely upon shallow wells for its supply is the portion of this district bordering upon Kelsall village—here building is going on pretty fast and no adequate supply is available. It is a district which will need serious consideration in the near future.

The Surveyor (Mr. J. Birtwistle) reports as follows:—*"Moulton, Davenham and Leftwich.*—The housing of the oxidising pressure filter has been completed, the pumps have been overhauled and the station is in a satisfactory condition. The supply to these townships has been very satisfactory, the supplemental supply through the 2in. branch from the Middlewich main having exceeded expectation. During the coal strike in April our stock of fuel became exhausted and it became necessary to depend entirely upon the Middlewich supply. After making arrangements with the Engineer to the Middlewich waterworks, this was carried into effect and for 22 days we took the whole of our supply through this 2in. branch and were able to keep the tank as full as usual without any inconvenience or difficulty.

"Lostock Gralam.—The supply of water to this district at the present time is satisfactory, but during June and July the demand was so great that the two reservoirs were completely emptied each day. The quantity actually pumped equalled a consumption of $11\frac{1}{2}$ gallons per head per day, which is abnormal for this district. I concluded that extraordinary waste was taking place, but that it was through defective private fittings only, as the tests upon the mains proved. The Council therefore granted additional assistance to facilitate closer house to house inspection. Many defects were discovered and in two weeks the loss was reduced to normal, in

fact an average saving of 4,500 gallons per day was effected and no shortage has been experienced since.

"The Council have now completed the agreement for the lease of land at Lostock Hollow, where a supply of good water has been found. Plans, &c., are in hand for the construction of a small reservoir and pumping station, to supplement the existing supply.

"The coal strike here again placed us in a difficult position as the fuel on order did not arrive and consequently we had to try other sources for a supply, difficult places to discover under such circumstances. However, Messrs. Brunner, Mond & Co. came to the rescue and thereby we maintained the supply of water to the district.

"*Weaverham (Village) and Acton.*—These works are now on a satisfactory basis. The new 2in. main laid on to the Tower tank from the Crabtree Green Waterworks as a supplemental supply has enabled these works to give a continuous supply in times of drought. The districts supplied will therefore not have to suffer as they did two summers ago, when the whole of the water available was given out in two or three hours each day.

"Thanks to the help received from Messrs. Brunner, Mond and Co., Ltd., Winnington, by supplying these works with fuel during the coal strike in April, a constant supply of water was maintained to the districts.

"*Cuddington, Hartford and Weaverham (Sandiway).*—The supply of water to the pumps is very satisfactory. The pump reservoir is invariably overflowing each morning, which could not be said two summers ago before the new 5in. main was laid.

"An old collecting drain 20 yards in length, at the springs, had become choked. This has been relaid on improved lines and the money spent thereby has been amply repaid, the volume of water from this section now being so great that the discharge pipes a little lower down are not capable of taking the whole of it and are therefore continuously flooded.

"The two oil engines and turbine pumps have been thoroughly overhauled and are in good condition for another heavy summer's work.

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"The Council have approved a scheme for the supply of water to two farms and six cottages at Ravensclough, Cuddington, which either have no supply, or the water now being used is bad, as reported by the Inspector. I hope to carry out the work in April next. The length of mains will be 833 yards.

"*Sproston*.—An extension of the mains in this district has been carried out in connection with the supply of water to one farm and three cottages, which were without a supply with the exception of what they could obtain from land drains and a well for the farm, which did not yield good water. The two owners concerned contributed the cost of this work and it was therefore no burden on the township. The length of main required was 390 yards.

"*Kinderton*.—The mains in this township have been extended for a distance of 420 lineal yards, for the supply of two salt works in Booth Lane. At one of the works a large number of girls are employed and in both cases it was required for the employees' needs in addition to manufacturing purposes. The owners of the works contributed the cost of the scheme.

"*Little Leigh*.—The public well situate near Clatterwick Lane having become a dangerous supply as shown by the bacteriological analysis obtained by the Inspector, the Council have decided to sink a new well on an improved site.

"Owing to the fact that in a large number of cases where private supplies obtained from wells have been polluted, it has been discovered that they were wrongly constructed, generally of open or dry jointed brickwork, the cover of which in some cases is of rough timber some two or three feet below the surface and soiled over and the surrounding ground not even restricted from the use of manure. The Council have therefore decided to sink a well on proper lines to set an example to the district. It now only remains for the consent of the landowner for the work to proceed.

"*Byley, Whatcroft and Rudheath*.—After a large amount of work a scheme of water supply for the above parishes has been approved by the Council. The initial cause of this proposed scheme is the Croxton pump situate at Croxton Lane end on King Street, Byley, which the Inspector reported to the Council was polluted, but as many other dwellings in Whatcroft and Rudheath, in addition to the few in Byley, dependent on this pump for a supply, have either a bad water supply or one

which is otherwise unsatisfactory, it was thought advisable not only to endeavour to deal with the Croxton pump area, but also with the other properties at the same time. The three parishes are very scattered thereby necessitating long lengths of mains, which although now are only intended to serve the main roads will be capable of further extensions should the necessity arise in the future.

“The scheme provides for a 4in. diameter connection to the Middlewich Urban District Council’s 8in. diameter main at Bull Ring, Davenham, a 4in. diameter main from that point along Davenham Road, through Shipbrook to Gadbrook corner, King Street, Rudheath; a 3in. diameter main along King Street to Blue Slates Farm, Byley and a 3in. diameter main in the opposite direction along King Street to Broken Cross Bridge, Rudheath, there to be connected to the existing mains and to supply that section of Rudheath now fed from the mains of the Northwich Urban Council, the idea being to have one scheme for the parish of Rudheath instead of two.

“This scheme, however, would have been too costly for the parishes, as the rateable values are so low, had not three property owners in the district agreed to contribute to it, including a very generous offer of Col. France-Hayhurst, who is the largest property owner along the route of the new mains. It is however necessary even now that a loan be obtained for a period of not less than 30 years and the Council have therefore decided to make application for one without delay.

“The number of houses without a satisfactory supply which will be directly benefited is 16 farms and 12 cottages and the total number to receive a supply through these mains is 189.

“The lengths of mains required for this scheme are as follows:—1 mile 7 furlongs 53 yards of 4in. and 3 miles 4 furlongs 97 yards of 3in., or a total of 5 miles 3 furlongs 150 yards.

“*Oakmere and Delamere*.—Although considered very good from other standpoints, it is a well-known fact that the Liverpool water causes a large amount of incrustation to take place in the water mains in these districts and as a consequence it is necessary at times to take out the galvanized iron tubes and clean them. This has happened at Delamere and it is a wonder how the consumers had obtained a supply at all, as when the tubes were removed the couplings were found to be

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almost completely choked in some instances. The trouble with the service pipes in these districts, several of which have had to be renewed, can therefore be readily understood. The Council have at last succeeded in persuading the Liverpool Corporation to fix a 3in. meter in lieu of the 2in. which has supplied the district for some years. This will materially help the supply when the demand is greatest, without the danger of the properties in the higher parts of the districts being without a supply at such times and will also permit of new consumers being added.

"It was a noticeable fact when the old meter was removed that incrustation had greatly reduced the internal diameters of the 2in. connections to the old meter, which, although I had not the opportunity to measure them, I estimate were $1\frac{1}{2}$ in. or $1\frac{3}{4}$ in., instead of 2in.

The Sanitary Inspector further adds to these very full reports by the following statement:—

"Twenty-four samples of water have been submitted to the County Analyst for chemical analysis, 22 of which were from private and two from public supplies; three further samples have also been submitted to Professor Delépine for both chemical and bacteriological analysis, making a total of 27 separate supplies being examined and dealt with during the year.

"Of the first 24 samples submitted to the County Analyst 15 were certified bad or unsuitable for drinking purposes, nine good and the three samples bacteriologically examined were certified pure from a bacteriological point of view. Of the 15 certified bad one was from a well supplying two cottages at Davenham which was abandoned and a supply obtained from the Council's mains; two were from private wells in the township of Little Leigh and which are to be closed, the Council having decided to provide a supply in place of a public well in the vicinity which is condemned, such new supply will also benefit six other houses at present without a proper supply; one was from a well at a farmhouse situated at Sproston and on my reporting that three other cottages near to were without a domestic supply of any kind on the premises, the Council at once arranged for the extension of the township mains and on this work being complete the condemned well was abandoned as a domestic supply; one was from a well at a farmhouse at Allostock where the owner had built a new house in place of the old one and to enable the Council to grant a certificate

under Section 6 of the Public Health (Water) Act, 1878, the well had to be abandoned and as no other underground water was available on the farm suitable for drinking purposes, a proper constructed rain water tank was built underground and approved. One other certified bad by the County Analyst was from a new well at Little Leigh put down by the owner of seven cottages at that time without a suitable supply, but on a further sample being submitted to Professor Delépine for both chemical and bacteriological analysis it was certified by him to be "from a bacteriological point of view pure and suitable for drinking purposes and from a chemical point of view hard" the supply therefore is approved and being within a reasonable distance of a cottage where one other sample was obtained from a well on the premises and certified bad enabled the owner to close the well as a domestic supply; one other was from a well supplying two cottages situated at Cuddington, the Council have arranged for the extension of the township mains to these and six other houses in the vicinity that are at present without a proper domestic supply; the remaining seven are from the Allostock district where the supply is engaging the serious attention of the Council officials. One of the samples submitted for bacteriological examination was from a new supplemental supply to the Lostock Gralam Village Works put down by the Council's Surveyor and was passed as good on all points. The remaining sample was from a domestic supply to a house where an outbreak of typhoid fever had occurred but was certified good and free from suspicion as the cause of the outbreak.

"The experience gained in submitting samples of drinking water for analysis is most clear that bacteriological and chemical analysis by the same authority gives the most satisfactory results.

"Certificates under Section 6 of the Public Health (Water) Act, 1878, have been granted by the Council to the owner of 29 new houses during the year, two of which are supplied with rain water tanks in the Delamere district where other supply is not available. The Council appointed a Committee to consider the feasibility of a public supply to that part of the township; two others are supplied from a private well approved after analysis and the remaining 25 are supplied from the Council's mains."

RUNCORN RURAL DISTRICT.—"The Runcorn Rural District consists of 40 townships, a considerable proportion of which, either adjoin, or are within the statutory limits of distance

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(for purposes of water supply) from some local authority other than your Council and from whom they can obtain a sufficient and continuous supply of first-class drinking waters. Thus we find that:—

1. Halton and Weston (with Weston Point) are supplied by the Runcorn Urban District Council with water from the Liverpool Corporation Vyrnwy water mains, this water being first delivered to Runcorn Urban area and thence distributed to these townships.

2. Acton Grange, Appleton, Daresbury, Grappenhall, Hatton, Latchford (Without), Moore, Newton-by-Daresbury, Stockton Heath, Stretton, Thelwall, Walton Inferior and Walton (Superior) are all supplied by the Warrington Corporation water mains; and

3. The Aston Estate, the Norton Estate and the townships of Aston, Dutton, Preston-o'-the-Hill, Sutton and Norley are all supplied by your District Council direct from the Liverpool Vyrnwy water mains.

“The above townships are all supplied by local authorities, other than your Council, with waters derived from sources outside your district.

“Derived from sources within your district there are the following water supplies:—

4. Frodsham and Frodsham Lordship are provided with an excellent supply, constant in character, which is obtained from a deep well and borehole in red sandstone.

5. Helsby is also supplied by a deep well and bore-hole in red sandstone.

“These two supplies are provided and distributed by the District Council.

6. Manley has a private water supply to 56 houses.

7. Budworth has a private water supply to 69 houses, and—

8. Grappenhall has a private water supply to 36 houses.

“Thus, out of approximately 6,460 houses in the area of your Council, about 4,972 houses are provided with continuous supplies of first-class drinking waters.

9. The remaining 15 townships are mainly supplied by private wells, public wells, running pipes from springs, wells and springs, or from combinations of two or more such supplies. These townships are Alvanley, Antrobus, Aston Grange, Bartington, Clifton, Crowley, Keckwick, Kingsley, Kingswood, Newton-by-Frodsham, Seven Oaks, Stockham, Whitley (Inferior) and Whitley (Superior).

“From the foregoing it is seen that your district contains 40 townships, 26 of which are supplied a constant supply of drinking water; and the chemical analyses of all these public water supplies indicate that they are as good as can be obtained, whether they are obtained from other local authorities, or from sources within your own area.”

TARVIN RURAL DISTRICT.—“The northern portion of the district is supplied partially by pipe supply and partially from public and private wells. The parishes of Ashton, Mouldsworth, Kelsall, Willington, Beeston, Tilstone Fearnall, Tiverton, Saughton and Waverton, comprising about 406 houses, are supplied by pipe; the remaining parishes, with about 1,420 houses, from wells.

“The southern portion of the Tarvin Rural District is supplied, as to the parishes or parts of the parishes of Aldford, Buerton, Churton-by-Aldford, by the Wrexham Waterworks; the remaining parishes by springs and deep and shallow wells.

1. Newton-by-Tattenhall.—The water supply of this village has been improved and several new tube wells sunk.
2. Carden.—A new reservoir tank has been made.
3. Gatesheath.—A new tube well has been sunk.
4. Stretton.—A new tube well has been sunk.
5. Milton Green.—A new tube well has been sunk and two other wells have been made with a wind-mill drive for the pump.

A dis-used well has been repaired and the pump put in order.

6. 3in. pipe supply from Saughton Tower to Huntington.
7. Ten new tube wells have been sunk in all in 1912.

“Farndon, Burwardsley, Broxton, Tilston and Harthill are all without satisfactory water supplies, also two houses at Horton-cum-Peel, two houses at Mouldsworth and several houses at Kelsall.

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"Two houses at Barrow—one well polluted, another out of order with bad surroundings; a well at Red Hill polluted; a well at Clotton, defective pump.

"Twenty-nine samples of water were analysed chemically and one bacteriologically.

"The existing water supplies are fairly free from the risks of pollution and no contamination by lead has occurred."

"TINTWISTLE RURAL DISTRICT.—"Tintwistle is supplied from its own reservoir, about $1\frac{1}{2}$ miles from the village, which is both plentiful and good.

"*Matley* (that portion situated near the Stalybridge Tram Terminus) is supplied from springs, which run into a reservoir situated at Gallows Clough. This supply is good. The farms situated in the area are supplied with water from springs adjacent to the houses and no complaints have been made regarding those supplies.

"*Hattersley*.—This district is composed chiefly of small farms, each having its own water supply from springs in close proximity to the house. I have only received one complaint regarding the water. I took a sample and analysed it and found no trace of sewage contamination. I analysed samples of water from Ogden Moor and Bottoms Well, Tintwistle and found them free from pollution."

WIRRAL RURAL DISTRICT.—"Two townships, viz., Prenton and Noctorum, are supplied by the Wirral Waterworks Company and 29 townships derive their supply from the West Cheshire Water Company. Moreton and Saughall Massie are supplied from the West Kirby Waterworks. Irby Mill Hill and Pensby (Newton) are without any public supply, obtaining what they require from surface wells and stored rain water.

"Three samples of well waters were submitted to the County Analyst who reported as the result of his analyses that two of them were good and fit for domestic use and that the third was not a good water, as it contained too much organic matter. The latter water is not now used, as a good supply was available from another source."

"In March, when there was a coal strike, I received a complaint that the water supplied by the West Cheshire Water Company was suspected to be the cause of an outbreak of

WATER SUPPLY—SEWERAGE AND SEWAGE DISPOSAL.

diarrhoea and sickness in the children in a large residence. The owner of the house complained to the Water Company that the water supplied was turbid and the Company explained that this was due to the fact that they were shutting the water off at night with the object of economising it and so conserving their stock of fuel while the coal strike lasted. When the mains were recharged the rust and sediment in the pipes were disturbed. I took a sample of the water for bacteriological examination and the report was to the effect that no bacteria associated with sewage or faecal pollution were found.

“In June a memorial was presented to the Council by residents in the Prenton district praying them to put pressure upon the Water Company to remedy the inconvenience caused by a deficient supply in the houses of the petitioners, which they stated was associated with the smallness of the main. The Council communicated with the Company and there has been no further complaint.”

Section VIII.

Sewerage and Sewage Disposal.

There is evidence in the reports of the several Medical Officers of Health that much good work has been done in the matter of providing additional sewers and maintaining in good order those in existence, besides attending properly to the disposal of the sewage thus collected. But there is, as will be seen from the report, a great deal remaining to be done and amongst the more urgent of these I would name the following:—

Congleton Municipal Borough—Astbury Marsh, West Heath and Dane-in-Shaw are stated to be without a proper system of sewers. Two factories in the Borough on the water-carriage system are said to deliver their sewage untreated into the river.

Middlewich Urban District—Seven houses at Cledford Bridge are without a proper system of sewers.

Sandbach Urban District—The outlying areas of Wheelock and Coldmoss Heath have no proper system of sewers.

SEWERAGE AND SEWAGE DISPOSAL.

Alsager Urban District—The Sunnyside district and parts of Linley are said to be without adequate sewers.

Bowdon Urban District—It is said that part of Grange Road, Bow Lane, Bow Green Road and Watling Street are without adequate sewers.

Hoole Urban District—The Piper's Ash area is inadequately sewered.

Mottram-in-Longdendale Urban District—Here the Mottram portion of the area has water-closets emptying into cesspools which are emptied about once a month. A great improvement would be effected if these could be connected to the sewers and the cesspools abolished.

Winsford Urban District—A certain number of houses near the bridge and river are not connected to the sewers: at Meadow Bank and a portion of Swanlow Lane there is not any sewer. It is believed that the sewers are ventilated by means of open gratings at the road surface and that offensive smells are common. This state of affairs should be remedied in view of the recent prevalence of diphtheria and typhoid fever in this district.

Compstall Urban District—A proper scheme of sewerage and a sewage disposal scheme are required here in order to prevent nuisance to the village.

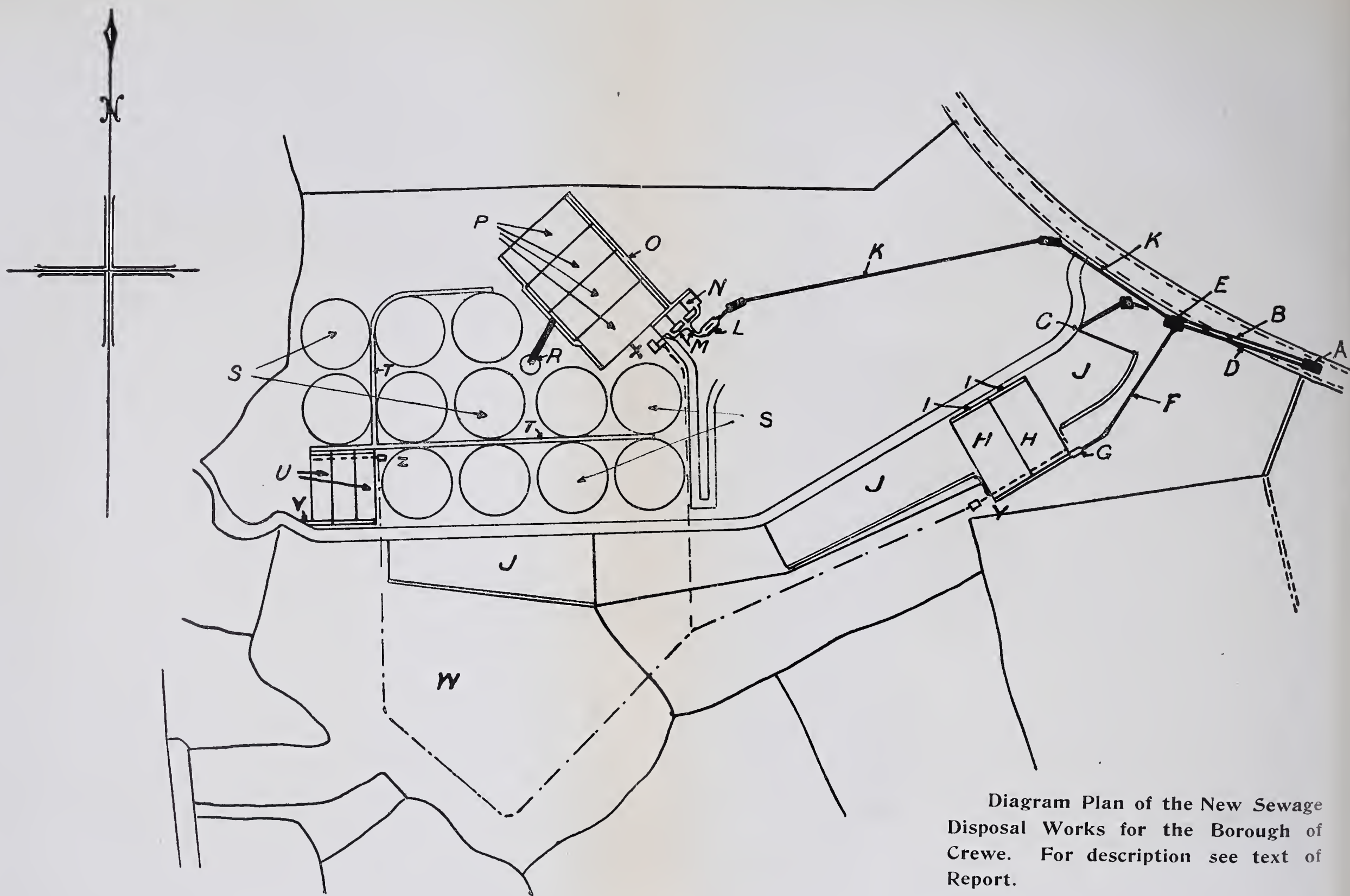
Nantwich Urban District—The Council should be urged to press forward with this scheme, which has been so long in hand.

Yeadsley-cum-Whaley Urban District—The Council should, in my opinion, extend their sewers to Hockerley Lane and Yeadsley Lane.

Chester Rural District—The Council should press forward with their schemes of sewerage and sewage disposal at Great Saughall and Mickle Trafford.

Congleton Rural District—A scheme of sewerage and sewage disposal is required at Thurlwood and Mow Bank.

Macclesfield Rural District—A sewer is needed in Nether Alderley adjoining the Alderley Edge Urban District, where a number of new houses have recently been built.



SEWERAGE AND SEWAGE DISPOSAL.

Malpas Rural District.—The three Outfall Works here need some slight alterations and a better arrangement for regular and systematic attention.

Nantwich Rural District.—The Council should proceed as rapidly as possible with their scheme for Haslington and Crewe Green and should commence without delay to deal with the bad conditions prevailing at Broad Lane, Stapeley and London Road and Crewe Road, Willaston, as also at Shavington and Bunbury.

Runcorn Rural District.—An endeavour should be made by the Council to expedite the sewerage of Moore, which has been in hand for some four years now.

Tarvin Rural District.—The decision as to the sewerage and construction of sewage disposal works at Farndon and Tattenhall is in my opinion not receiving adequate consideration by this Council.

Bucklow Rural District.—Baguley and particularly Shady Lane is unsewered ; Hall Bank, Mobberley, appears to require a new sewerage scheme ; Stonepail (Northen Etchells) is in need of a sewerage scheme ; a small scheme is somewhat urgently required at Partington and one is needed also for the Park Gate portion of Peover Superior though it is understood that the Council have this in hand at present. The Old Village at Styal is said to be drained direct into the river : building will probably proceed somewhat rapidly now that a new Railway Station has been erected and it is believed that the Council, realising this, have a scheme in hand for this area.

I append various observations of the District Medical Officers of Health on these questions.

CREWE MUNICIPAL BOROUGH.—“ There is a proper system of sewers throughout the Borough, and the sewage is disposed of by broad irrigation on the Corporation Farm and by the double contact method to a small extent. The new sewage works with open septic tanks, percolating filters and humus tanks are nearing completion and their use will result in a more efficient method of treating the sewage.

“ I am indebted to the Borough Surveyor for the following description and sketch of these new works :—

“ The sewage and storm water will be conveyed to a manhole at (a), at which point any quantity above six times the dry

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weather flow will be discharged over a fixed weir and then along a pipe (b) direct into the stream at (c). The sewage and storm water up to six times the dry weather flow will be conveyed along a pipe (d) to a manhole at (e); again it will be divided and the storm water above three times the dry weather flow will be discharged over a fixed weir and conveyed along a covered channel (f) (in which a screen is fixed at (g)) to the storm tanks (h) and then into the stream at (i). The supernatant water in the storm tanks will be drawn off by means of decanting valves and treated by irrigation on specially prepared areas at (j), the remaining contents of tanks will be treated as sludge. The sewage up to three times the dry weather flow will be conveyed from manhole (e) along a pipe (k) to the screening chambers (l), in which are fixed continuous power-driven raking screens and then along channels (m) into the detritus tanks (n) and again along channels (o) to the septic tanks (p). The septic tank effluent will be conveyed to the percolating beds (s) through a patent automatic distributor (r) regulating the supply to each bed, while the distribution on each bed will be by means of auxiliary power-driven sprinklers. The bed effluent will be conveyed along channels (t), to and then through the humus tanks (u) before being finally discharged from the works at (v). The sludge from the detritus and septic tanks (n) and (p) and storm tanks (h) also the humus from the humus tanks (u) will be disposed of by trenching the same in land at (w), specially prepared for its reception and it will be raised to the trenches by means of compressed-air ejectors fixed at (x y z).

“ New sewers were laid during 1912 in the following streets :

South Side of Bedford Street.

Rear of Gresty Road from Bedford Street to St. Clair Street.

Between Lincoln Street and Bright Street.

Gainsborough Road (part of).

Denver Avenue.

Rear of Nos. 111 to 119, Nantwich Road.

48 sewer ventilating shafts were erected during 1912.

“ The figures for 1912 show a continuation of the advances made in recent years in modernising the local sanitary arrangements. The increase in the facilities for the removal of excreta by water carriage and the diminution in the number of the old privy-middens mark distinct progress in this direction and contribute to the prevention of disease in the community. The

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entire disappearance of the privy-midden is most desirable and will be attained ere long at the present rate of progress. The large number of pail closets still in the town is not satisfactory and although the number was less in 1912 than in 1911, there are more of these conveniences in use to-day than in 1901. The conversion of pails to water-closets would be very much facilitated if the powers given by the Public Health Acts Amendment Act, 1907, Section 39, were adopted and exercised by this authority."

DUKINFIELD MUNICIPAL BOROUGH.—"The sewage of the district so far as the sewers themselves are concerned, is very efficiently and extensively carried on, everything being constructed according to a sewage plan, having Bradley Hurst as the outlet. The sewage is conveyed by means of a high level and low level sewer and is treated by precipitation with chemical filtration and passes through the land into the river. The plot of land at Bradley Hurst is 63 acres in extent. Over 12,000 tons of sludge are sent over per annum from the sewage. The sewers are ventilated at the manholes and are regularly flushed, more especially in dry weather. House drainage is also carefully attended to and personal visits are paid to the houses to see as to the proper trapping of drains and the condition of the slop-stone pipes.

"The condition of the river Tame is, therefore, considerably better as regards pollution, owing to the time and money spent upon the purification of sewage by the various localities on its banks, as no sewage now enters the river from any of these districts unless previously treated."

HYDE MUNICIPAL BOROUGH.—"The sewage is treated on the bacteriological system, with the Candy-Whittaker automatic filter. There have been no complaints at the outfall works, and no special action has been taken during 1912."

STALYBRIDGE MUNICIPAL BOROUGH.—"The older portions of the Borough are now well sewered and extensions are constantly being made into the more outlying portions of the town. The sewage is disposed of along with that of Dukinfield at Outfall Works situated at Bradley Hurst in the township of Dukinfield. The sewage farm has an area of $63\frac{1}{2}$ acres, and the average dry weather flow of sewage coming to the works from the combined districts is about two million gallons per 24 hours. The sewage received at the works passes to a screening chamber, where coarse suspended matter is arrested by a grating and removed by hand rakes. Leaving the

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screening chamber the sewage has mixed with it alumino-ferrie and ferrozone and then passes either into large sedimentation tanks or into roughing filters.

“The sedimentation tanks are 12 in number, arranged in two sets of six of 80,000 gallons capacity each and are worked upon the continuous flow principle. In these tanks a large amount of matter is separated from out of the sewage and is deposited as sludge at the bottom of the tanks. The roughing filters, of which there are five with an aggregate area of 1,100 square yards, have a bed of coke 2ft. 8in. in depth, through which the sewage filters and the coke, when it has played its part, is removed and utilised as fuel for the boiler furnaces, its place being taken by fresh supplies of coke. The effluent from the roughing filters and sedimentation tanks is distributed by means of Coomb's sprinklers, attached to iron distributing pipes running transversely across the beds at suitable intervals, over large percolating beds of which there are seven with an area of $2\frac{1}{4}$ acres, well excavated and drained and filled with selected graded clinker of a depth of 5 feet. From the percolating beds the effluent passes partly by open channels and partly over and through plots of land to the outfall chamber and thence into the river.

“These arrangements are only sufficient to deal satisfactorily with about two-thirds of the normal flow of sewage, besides which there is the storm water to be dealt with, so, to provide for the satisfactory treatment of these additional quantities, the Joint Sewerage Board are at present carrying out sundry alterations and additions to the works.

“The large 3ft. sewer bringing the sewage to the screening chamber is being duplicated and new detritus tanks are to be constructed and equipped. Two new storm water settling tanks are being constructed on the low-lying land adjoining the river. These will have a total capacity of 600,000 gallons and will receive a part of the sewage after it has left the screening chamber and has been treated with alumino-ferrie and ferrozone. The present sedimentation tanks are to be added to by the construction alongside them of new tanks, either of a pyramidal or of a rectangular form, but it has not as yet been definitely decided which form they shall take. Beyond the present roughing filters, five new circular percolating filters, 7 feet in depth and of an area of 616 square yards each, are to be constructed, over which the sewage is to be distributed by means of rotating arms. Between the present large percolating beds and the river on the low-lying, sewage-logged portion of the farm, which has up to now

served—as well as it could—as an irrigation area for the effluent from the percolating beds, are to be constructed two humus tanks, 3ft. 6in. in depth and of a capacity of 200,000 gallons, to intercept any suspended matter in the effluent immediately before its final outlet to the river.

“The distribution of the sewage upon the large percolating beds by the Coomb’s sprinklers has not always been satisfactory, owing to the sprinklers at times getting choked and becoming inefficient, or even inactive, from corrosive action of the sewage, or from the rapid formation of spiders’ webs around the sprinklers while the bed is having its periodical rest. In order to obviate this difficulty in connection with one of the beds, two 500-gallon hydraulic rams, which will act automatically, are being put down as an experiment to force the sewage through the sprinklers so as to clear them and enable them to act more continuously. The sludge deposited in the sedimentation tanks is drawn from the tanks and ejected into a sludge well, from which it is conducted to large sludge-presses which convert it into a satisfactory sludge cake, which has been found to be of no little value as a manure. During the year, 14,070 tons of wet sludge were taken from the tanks and pressed into sludge cake of a weight of 2,810 tons. Of this sludge cake no less than 2,331 loads have been taken by farmers for use as manure. The road dirt or sand taken from the detritus pits amounted to 491 tons.

“The sewage from the district of Matley (under the Tintwistle Rural District Council), adjoining the Mottram terminus of the Stalybridge Borough, is but very imperfectly dealt with and the effluent enters a stream in our Borough. This sewage must of necessity gravitate into our Borough and I have for the past few years advised its reception into our sewers so that it might be efficiently dealt with along with our sewage at Bradley Hurst.

“The Tintwistle Rural District Council approached the Joint Sewerage Board with an application that the Board should receive and deal with their sewage, but I regret to say that the Joint Board declined to receive this additional sewage. The Rural District Council are therefore contemplating the construction of sewage works in the immediate vicinity, but this would be very detrimental to our Borough, as not only would the effluent therefrom necessarily enter a stream running through our Borough, but also the proximity of these works to a very important residential portion of our Borough would seriously jeopardise further developments in this direction. Our Borough has, therefore, after careful consideration, decided that unless the Joint Sewerage

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Board consent to receive the sewage from this area they will feel it their duty to apply for the incorporation of this district with our Borough."

WALLASEY MUNICIPAL BOROUGH.—"The water-carriage system obtains throughout the Borough and the crude sewage is discharged into the Mersey below low-water level."

ALDERLEY EDGE URBAN DISTRICT.—"Sewage is disposed of by detritus and sedimentary beds, sand and cinder filtration and land filtration. No complaints were made as to the disposal works. Only minor improvements were made at the disposal works during the year."

ALSAGER URBAN DISTRICT.—"This is the same as last year. The sewage farm has been well looked after. The new sewage scheme will be advertised in January, 1913 and the work will commence as soon as possible." NOTE—This work is now well in hand.

ALTRINCHAM URBAN DISTRICT.—"The treatment of the sewage of the district is carried out at the Council's Sewage Farm at Dunham Massey, by sedimentation tanks and land filtration. A commencement of separating the surface water from sewage has been made on the east side of the district, with the object of relieving the sewers during storm times and further work in this direction is contemplated immediately. As regards the sufficiency of the arrangements at the sewage disposal works, an expert engineer is at present engaged reporting on the same."

ASHTON-UPON-MERSEY URBAN DISTRICT.—"The River Mersey has been fairly full of water, so the current has been regular and little or no smell from the stagnation of any part of the stream. The brooks too have flown freely with clean water. The sewage beds of the Authority have acted well and the effluent has been fairly free from impurities as it entered the river, having passed through the tanks and the willow beds. Owing to there being plenty of ground for further soakage and dealing with the sewage, application has been made to the Local Government Board to borrow money to convert all the privies into water-closets except in the outlying farms. This will when completed lessen materially the fly-breeding places and the occasional smell."

HIGHER BEBINGTON URBAN DISTRICT.—"The district is sewered throughout except a few outlying residences. The sewers

are flushed periodically. The outfall is into the River Mersey through the sewers of the Lower Bebington district by arrangement with the Council of that area."

LOWER BEBINGTON URBAN DISTRICT.—"There is an efficient system of sewers which receive sewage not only from the district, but also from Higher Bebington, Spital-cum-Poultton and part of Birkenhead. There is no method of purification utilised. The crude sewage is retained in a tank with a Penstock valve, and is then discharged into the tidal waters of the Mersey. A record of the depth of sewage retained in the tank is kept from day to day, and is brought before the Health Committee at each of its monthly meetings. Construction of sewers during 1912:—510 yards of new main, 92 yards of tributary sewer."

BOLLINGTON URBAN DISTRICT.—"The district is well drained and no difficulties have been experienced with the main sewers and drains during the year. There are, however, still certain portions of the district which are not connected with the main system. These have, up to the present, been found to present too great difficulties to bring this about, owing chiefly to their isolated position. The settling tanks and filter beds have been kept in good working order by the caretaker, who acts under the instructions and supervision of the Sub-Committee appointed for this purpose."

BOWDON URBAN DISTRICT.—"The few farms and cottages in the Bow Green are the only instances of houses without a proper general sewerage system."

BREDBURY AND ROMILEY URBAN DISTRICT.—"The district is well sewered and drained, the sewage being treated at the two outfall works on the bacteria and filtration system. Samples of the effluent have been taken and analysed six times and the reports have in every case been very good. The condition of the canal and river has been satisfactory and no complaint of their pollution has been made during the year."

BROMBOROUGH URBAN DISTRICT.—"The more urban parts of the district are well sewered. The sewage is treated in septic tanks and contact beds. A reconstruction of the sewage disposal works at Dibbinsdale has been carried out, so as to cope with the increased work required of them and to bring them into line with more modern requirements. A scheme is under consideration for the construction of new sewers for the whole of the district to the

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east of the railway line and should this scheme be approved it is intended to pick up the contents of the sewers at Bromborough Pool Village and discharge them into the Mersey Estuary at low water and on the ebb tide. From Bromborough Pool Village and works the sewage is discharged into the Mersey at low-water mark. From the Mersey Chemical Works and from the 15 cottages connected with the powder magazines the sewage is passed directly into the river. Some of the large residences in the district have provided their own installations to deal with their sewage and pass the discharge through filter beds."

CHEADLE AND GATLEY URBAN DISTRICT.—"The Sewage Outfall Works continue to work very satisfactorily as in previous years. Whenever samples have been taken by the Inspector for the Mersey and Irwell Joint Committee for analysis, they have been reported as very good. When the Outfall Works were first opened the sewage was treated with a solution of alumino-ferric and then passed into settling tanks, from which it was passed on to filters consisting of sand, gravel and polarite. As this was a very expensive process it was changed a few years ago and now, as your Surveyor informs me, the sewage is not treated chemically, but allowed to settle in open tanks and then the effluent is passed on to the land. So far this process has worked satisfactorily. There are still 14 acres of land, which have been levelled up and can be used for land filtration.

"Although the original sewerage scheme has been completed several years, additions were made in 1905, 1906 and 1907 and also in 1909. During the past year a length of sewer (3,019 yards) has been laid and completed in the Adswold district. At present the houses in this part of the district drain into septic tanks, which consist of an aerobic and an anærobic tank. This arrangement with a little care worked well. During the year plans have been drawn out and sanction obtained from the Local Government Board for your Council to lay a sewer down in Finney Lane. I am informed that the work is to be proceeded with as soon as possible."

COMPSTALL URBAN DISTRICT.—"The house drains are trapped and ventilated. The sewerage consists of slop water and soap water and is conveyed by the sewers to a reserve which collects water from the river for the turbine at the mills. Eventually it is discharged into the river. The outlets into the reserve are constantly cleaned, so that the sewage is not allowed to deposit. This year there have been no complaints about the odour arising from the reserve."

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ELLESMERE PORT AND WHITBY URBAN DISTRICT.—“The main portion of the town possesses a water-carriage system and the more rural parts still make use of privies. At the disposal works the sludge has been removed from the tanks and the general condition of the filter-beds and the septic tanks appears much better than in the past.”

HALE URBAN DISTRICT.—“That portion of the sewage from the south side of Hale Road with a little on the north side is dealt with at the Council's Sewage Farm, while the major portion of that from the north side of Hale Road is dealt with (by arrangement) at the Altrincham Sewage Farm. The methods employed at the Council's Sewage Farm are as follows :—

- (a) By septic tank, followed by bacteria beds and broad irrigation.
- (b) By settling tanks and broad irrigation.

“The effluent as reported on by the Joint Irwell and Mersey Commissioners has been satisfactory, with the exception of two samples, one of which (a bad one) was taken whilst the septic tank was being cleansed and a quantity of sewage had accidentally overflowed on to the land without tank treatment. During the year, however, investigations have been undertaken and the advice of an expert taken, with a view to improving and increasing the efficiency of the outfall works to meet the extra demands of the growing district. The carrying out of such alterations as seem necessary is, at the time of writing this Report, under consideration and will be dealt with in the next Annual Report.

“The following new work has been done during the year :—

- (a) Sewage sewers completed in Wyngate and Cleveland Roads and new sewers laid in Clarence and Riddings Roads.
- (b) Surface water sewers completed in Wyngate and Cleveland Roads and new sewers laid in Park Road (Hale Road to Bower Road), Riddings Road and Clarence Road.
- (c) Sewers relaid in Hargate Drive and at the rear of Peel Avenue.
- (d) Surface water course on Bowdon Boundary cleansed.

“During the year improvements have been made at the outfall works. The land, part of section 1, has been graded and

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partly re-underdrained and section 2 land has been graded and the willows removed, giving a better distribution of the tank effluent over the land. The septic tank, which was almost full of sludge, has been cleaned out, as have also the bacteria beds and these are now sending a good effluent on to the land. Further extensive improvements are under consideration, including the grading of the land and extension of the tanks, which, if carried out, should secure for some years to come a first-class effluent."

HANDFORTH URBAN DISTRICT.—"A new sewage scheme is now being considered by the Local Government Board."

HAZEL GROVE AND BRAMHALL URBAN DISTRICT.—"The new works of sewerage carried out during 1912 are :—An 18in. surface water sewer has been laid in Argyll Street, a length of 12in. sewage sewer in Torkington Road has also been laid and sewers in Kitts Moss Lane and Bramhall Park Road have been relaid. The parts of the district still without a proper system of sewers are isolated portions of districts only."

HOLLINGWORTH URBAN DISTRICT.—"The district is well equipped with a good main sewer, which has satisfactory fall and flush. House drains and sewers are nearly all connected with the main sewer. One cesspool has been removed during the year. There now remain three only in use, which are regularly inspected and emptied. The farmsteads on the hillsides have a satisfactory system of sewers of their own and their drains mostly empty into cesspools not in close proximity to any building. These cesspools are periodically cleared by the farmers themselves and the contents utilised as manure on the land.

"By means of a well-arranged water-carriage system, the sewage is conveyed to the disposal works, which are situated down the river, well away from all dwelling-houses. The treatment at the outfall works is by tanks, filters and land and I have nothing unsatisfactory to report for the year 1912. The Inspectors of the Mersey and Irwell Joint Committee took several samples during the year and good effluents were reported in each case.

HOOLE URBAN DISTRICT.—"The sewers of the district empty into the Chester system and have been regularly flushed. In my last report details were given of a scheme for improving the sewers of the district, plans of which were sent to the Local Government Board and have since received their approval. The new work was commenced in October and is being closely supervised by the Consulting Surveyor, who reports that it is

proceeding in a sound and workmanlike manner. He hopes to have the workhouse and all the small connections along Lightfoot Street connected to the new system in the early part of 1913. When the whole scheme is completed the sewage system throughout the district will be greatly improved."

HOYLAKE AND WEST KIRBY URBAN DISTRICT.—The Engineer has kindly supplied me with the following report, which provides succinctly a description of the sewers, the difficulties met with, the methods of flushing and his recommendations for improvements:—

"Dee Lane Outfall.—There is considerable difficulty in keeping this outfall open owing to the constant encroachment of sand. The Council will have to consider this problem in the near future. Sewer flooding has occurred in Carr Lane, Hoylake, owing to the storm overflow down Hoyle road being rendered useless by the blocking up of the Parade sewer owing to collapse of the fire-clay pipes. The pipes have been replaced by stoneware, but two other settlements are under observation.

"All the main sewers in the district usually run full bore and are therefore self cleansing. To flush these with fresh water is worse than throwing money away, as it only tends to prevent the free flow of the tributary sewers without in any way assisting the main sewer. Efficiency and economy is best obtained by flushing those sewers which from lack of gradient or flow are not self cleansing, and saving water on sewers which from observation and levels are found to be self cleansing. Certain sewers are flushed by impounding sea water and other sewers have such a poor gradient—or no gradient at all—that flushing has no effect and the only means of dealing with them is to rod them.

"There are still certain sewers of deposit in the Kingston Road district, West Kirby, which, when flushed, only cause flooding in the adjoining yards. Three of these short sewers can now be re-laid to self-cleansing gradients into the new main sewers laid in Orrysdale Road and Bridge Road and I would recommend that this be done in the next financial year out of the revenue, as the cost will be saved in water and labour. The diversion of the Lang Lane district sewage from across Lear's land into the new main sewer down Riversdale Road has stopped all flooding in the Grange Road, Dee Lane and Milton Road areas.

"Considerable economy in the accounts for water has been achieved by putting all water used through a meter and the adoption of a system of flushing, but further saving could be

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effected by using sea water, which might be raised by an electric motor pump fixed at the new baths and conveyed by a motor water-cart. both for street watering and sewer flushing. The new pumping plant in Stanley Road will do away with three flushing tanks.

WEST KIRBY URBAN DISTRICT.—“The Council flush the drains of about 50 houses at a charge of 2s. 6d. each visit to cover cost of water and labour, but naturally it would not be possible to flush the drains of all houses without increasing the rates.

New Sewers Laid :—

Centurion Drive	...	...	Foul Sewer.
Foxfield Road	...	...	Extension of Foul Sewer.
Stanley Road	...	...	Foul Sewer.
Stanley Road	...	...	Surface Water Sewer.
Park Way	...	...	Extension of Foul Sewer.
Bridge Road	...	...	Diversion of Lang Lane District Sewage from the defective sewer across Lear's land to the new deep level sewer down Riversdale Road.
Park Road, Meols	...	...	Surface Water Sewer.
Queen's Avenue	...	...	Surface Water Sewer.
Grosvenor Avenue...	...	...	Surface Water Sewer.
Cholmondeley Road	...	...	Surface Water Sewer.

Stanley Road Pumping Station has been completed and will do away with three flushing tanks.

New Streets.—Done under the Private Street Works Act, 1892 :—

Celtie Road.	Grosvenor Road, Hoylake (foot-path only).
Coronation Road.	Murray Grove.
Cholmondeley Road.	Graham Road (part).
Grosvenor Avenue Continuation.	Stanley Road Extension.”

KNUTSFORD URBAN DISTRICT.—“There is nothing fresh to report. The effluent from the sewage works was examined six times during the year by the M. and I.J.C., and was each time classified as ‘good.’”

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LYMM URBAN DISTRICT.—“The effluent from the sewage farm, as analysed by the Mersey and Irwell Joint Committee, is reported ‘good.’ The new sewerage scheme is now well in hand.”

MARPLE URBAN DISTRICT.—“We are still endeavouring to improve the sewerage and drainage in this district. A short length in Stockport Road is, I believe, to be soon rectified. The flushing of the dead ends of flat sewers may be sufficient in a damp summer like our last one, but in dry weather the whole length of sewers should be periodically flushed. The sewage works will require to be altered ere long, as they are becoming much too small for the amount of sewage. I see that your Inspector is recommending more land filtration, which I hope will assist greatly. Three samples of effluent from the outfall were taken by the Mersey and Irwell Joint Committee’s Inspector, and all were satisfactory.”

The Surveyor reports:—“The works for the purification of sewage (that is, sewage up to three times dry weather flow) consist of screening chamber of 6,000 gallons capacity, septic tanks of 95,000 gallons capacity, primary filters 600 yards superficial, secondary filters of 500 yards superficial area and three acres of land. The works dealing with the storm water above three times dry weather flow consist of two tanks having a total capacity of 80,000 gallons. The amount of sewage flowing to the works is 130,000 gallons per day. Considerable difficulty has been experienced during the past year in dealing with the amount of sewage and sludge from the tanks. In order to meet this difficulty it will be necessary to provide more sludge beds and to construct a fairly large land filter, this land filter being made by removing the soil from the land down to the gravel sub-soil, laying sub-soil drains and making up to the required level with engine ashes. Three samples have been taken by the Rivers Board Inspector, all of which were satisfactory. The sale of crops grown on the disposal works land realised £8.”

MOTTRAM URBAN DISTRICT.—“I have inspected the sewage works and find them working well. Samples of the effluent were taken by the Inspector to the Mersey and Irwell Committee and the report received of same was satisfactory. The method of treatment is by precipitation tanks, filters and land irrigation.”

NANTWICH RURAL DISTRICT.—“A Local Government Inquiry was held on the 6th March, for sanction to borrow the money for the acquisition of the additional $17\frac{1}{2}$ acres of land required for sewage disposal and pending the Board’s decision the completion

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of the scheme was postponed. On the 3rd May the Council received a communication stating that the Board refused to sanction the loan as the land was unnecessary. Acting on the advice of their engineers the Council made representations on the matter to the Board and correspondence ensued which was in progress at the end of last year."

NESTON AND PARKGATE URBAN DISTRICT.—"It can legitimately be claimed that the area is well sewered, for the Council long ago recognised this prime necessity for the healthy development of the area under its control. Old sewers have been reconstructed and new ones made in accordance with the growth of the townships. Much public money has been expended in the sewerage schemes, but the full benefit of this expenditure is far from realised, for properties unconnected with the sewers even along the main streets are common. There is no disposition on the part of owners to voluntarily adopt the water carriage system, although one would from ordinary reasoning have concluded that with the abundant water supply available and payment having been exacted for the sewers, that the small additional expense necessary to complete the work would have been forthcoming. Automatic and horse flushing tanks are in regular use throughout the system.

"The bacteria beds in which the sewage from Great and Little Neston is treated are in good order and do their work efficiently. A piped drain conducts the effluent from the beds to the River Dec.

"Parkgate sewage is discharged into tidal water and the sewer is flushed periodically by means of a private swimming bath which discharges 18,000 gallons of water, obtained from an artesian well, along a six inch pipe into it. A Local Government Board Inspector visited and reported on this sewer. Consequent upon his recommendation you have decided, as soon as tides and weather are most suitable, to extend the outfall sewer to reach the deep gutter. On the same advice you have arranged that the flush from the bath should be discharged at ebb tide. No complaint has been received for over three years in connection with Parkgate sewerage and the old cause of offence does not seem to be in existence any longer."

NORTHWICH URBAN DISTRICT.—"The new sewerage scheme for portions of the district is nearing completion and together with the recent scheme for the Castle side of the river will make a very efficient and complete sewerage of the whole town. The chief outfall is at Winnington, in the Rural District of Northwich."

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RUNCORN URBAN DISTRICT.—“All the town sewers with the exception of one discharge into one large intercepting sewer that runs parallel with the town and dips under the Ship Canal at ‘no man’s land’ to the west of the town and into the River Mersey. Further west there is another large sewer that drains some of the outside parts of the town and dips under the canal some distance to the west of the town and discharges also into the River Mersey. These sewers are under continuous supervision.”

SANDBACH URBAN DISTRICT.—“The sewerage system is in very good working order and the effluent is a very good one. The system is as follows:—All the sewers of the town have been connected up with the new system. One part has a small system of its own and another that lies very low has been provided with a small pumping station of its own where the sewage is lifted by a water motor into one of the higher sewers. Storm overflows have been placed at various points. The outfall works are designed to deal with the sewage from 4,600 persons at 20 gallons per head, or 92,000 gallons per day dry weather flow. The works consist of grit tanks, septic tanks, continuous filter beds, storm beds and three acres of land for final treatment. The sewage is delivered at the works in two sewers which join in an open channel and pass by an open trough 12 feet long, arranged so as to overflow when six times the dry weather flow is passing. From here flowing through two open channels with weirs 20 feet long, arranged to divide the sewage again, passing three times the dry weather flow to the tanks and the same quantity to the storm water bed. There are two grit tanks, each 10 feet square by 6 feet deep, with a capacity of 7,500 gallons and two septic tanks, each 41 feet by 20 feet by 9 feet deep, with a capacity of 92,250 gallons. The grit tanks are fitted with chain pumps to remove the sludge, which is pumped to a small lagoon on low ground. There are two filters, 70 feet diameter, 6 feet deep, with a total contents of 1,710 cubic yards, upon which the sewage is distributed by Fiddian distributors and from here the filtrate is distributed to the three acres of land by an open carrier. The filters are filled with tap clinkers, broken up to varying gauge, from two inches at the bottom to $\frac{1}{2}$ inch at top. The land has been drained to an average depth of 4 feet. The storm water bed consists of 670 cubic yards of broken clinkers, the water being distributed by half pipe channels. A few houses in the outlying districts are supplied with cesspools of a suitable character and are emptied and cleaned out as required.”

TARPORLEY URBAN DISTRICT.—“There have been no new works of sewerage carried out during 1912, and some parts of the

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villages are still without a proper system of sewers, having tanks and cesspools which they empty on to their gardens and land. Nearly all the cottages in Tarporley have been provided with w.c.'s. The Tarporley sewage is disposed of by means of a precipitation tank, sludge beds and land treatment. These sewage works are in good condition. There have been no complaints as to the Disposal Works and no alterations have taken place at the Disposal Works during 1912."

WILMSLOW URBAN DISTRICT.—"The sewage is treated by :—
(a) Precipitation tanks and land; and (b) Broad irrigation. No complaints were made during the year. A few parts of the rural area (Morley and the Hough) are without a proper sewerage system. No new works were carried out during the year."

WINSFORD URBAN DISTRICT.—"The district is well sewered as regards the town itself. Outlying houses in 'rural' conditions are beyond reach, but are not numerous. Some of the sewers are very old and are not such as would be laid to-day."

YEARDSLEY-CUM-WHALEY URBAN DISTRICT.—"The work in connection with the Joint Sewerage Scheme has been proceeding for the past few months and the progress made has been very satisfactory considering the local engineering difficulties. Your intention to include the Stonehead district in the present scheme is, I am sure, an extremely wise one. At the same time, I would suggest that the distant end of Hockerley Lane should be included and also the continuation of Yeardsley Lane, Furness Vale. In both places there are detached and semi-detached villa residences. The sewerage from these after passing through cesspools drains into brooks, which then can only be described as open sewers. For this reason alone, these districts should be included; but there are other considerations which might merit your attention. The districts named are capable of developing as very desirable building sites in the future and I feel that it would be a wise provision to make the sewerage scheme as complete as possible now. There can be no doubt that in recent years this district has become known as an attractive residential place for those whose business causes them to lead a strenuous city life. It is noteworthy also that Manchester Physicians and Surgeons very frequently recommend their patients to reside in your district."

BUCKLOW RURAL DISTRICT.—"*Timperley*. A considerable quantity of surface water has been diverted from the sewers, especially in Brook Lane, where it was found that the brook

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itself when in flood could gain access to the sewer. One complaint was received from the Mersey and Irwell Committee, having reference to the storm overflow on the Sinderland Brook. A length of 1,386 yards of sewer was specially cleansed and much solid deposit removed. This remedied the trouble; but it is likely to recur periodically. There have been no complaints of the effluent from the disposal works.

“*Dunham Massey*.—All satisfactory.

“*Northenden*.—The plans for the new and enlarged outfall works are completed and an application to the Local Government Board is about to be made for sanction to the necessary loan.

“*Baguley*.—Plans are practically completed for a new sewer to be laid along Shady Lane. This will enable cesspools to be abolished at the new property specially referred to in my Report for 1910 and of course at the older cottages also. The Baguley Sanatorium will be enabled to dismantle the private sewage works and to drain direct into a short branch sewer, of which the Manchester Corporation will bear the cost. The new sewer will discharge into the existing Brooks’s sewer. This also will be a matter for application to the Local Government Board.

“*Peover Superior*.—A scheme has been prepared for dealing with Parkgate and negotiations are in progress. Peover Heath is considered too far away to be joined in the same scheme; the objection, however, being only as to cost.

“*Styal*.—The outline of a scheme has been prepared and negotiations are in progress as to a site for outfall works.

“*Northen Etchells*.—The Cheadle and Gatley Urban District Council having refused to connect any more houses in the Rural District to their sewers, the time has arrived when an independent outfall works must be provided for the hamlet of Stonepail; or, as an alternative, it must be absorbed by the Urban District.

“*Flushing Sewers*.—The main sewers in Dunham Massey and Northenden have been flushed regularly, especially through the dry weather. Ten manholes (flagholes for cleaning purposes) have been built up above ground level and iron manhole covers fixed on same. A new manhole was built at the top end of Baker Street, Timperley. The main sewers in Dunham Massey, Timperley and Northenden have been gauged and results tabulated and reports submitted periodically to the Council.

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“Timperley Brook Diversion and Cleaning Out.—A request has been received from the Altrincham Urban District Council to have a portion, 132 yards in length, near junction with Baguley Brook, straightened and a relief culvert under Bridgewater Canal, which has been built up, opened out again, so as to prevent flooding in the district of Brook Lane.

“Main Sewer Extensions.—Main sewer extensions have been constructed with the necessary manholes in each case.

29 yards 9-inch Sewer, Wright Street, Dunham.

75 yards 9-inch Sewer, Clark Street, Dunham.”

CHESTER RURAL DISTRICT.—“The following new works of sewage have been carried out during 1912:—

1. Green Lane extension in the Parish of Great Boughton.
2. A new Septic Tank at Thornton.
3. A new Sewer at Picton.
4. A Sewer improved upon at Backford.
5. A new Tank and Filter Beds at Balderton.
6. An Inspection and Flushing Chamber was provided to flush the main sewer between Ermine Road and West Street, Newton.

“Great Saughall and Mickle Trafford are both in want of a proper system of sewerage. Great Saughall you have already proposed a scheme for.

“The City of Chester sewers dispose of the sewage from Christleton, Great Boughton, Newton, Upton and the Bache. Eccleston, Pulford, Poulton and part of Dodleston are treated by the Eaton Estate. A filter bed at Balderton treats a good portion of the Dodleston sewerage, as well as Balderton. A similar filter bed has been provided for Poulton. There have been no complaints during 1912 as to the disposal works in your district.”

CONGLETON RURAL DISTRICT.—“Most of the schemes are working well, the exception being the one at Arclid, which in my opinion requires doubling. Thurlwood drainage is bad but plans are before the Council and will soon be started I hope. Elworth is drained but outfall works are badly required and the plans before the Council will remedy this defect. This village is growing fast

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and will still continue to grow. Mow Bank :—The drainage here is bad and wants attention. I have frequently visited the irrigation grounds and found them satisfactory.”

MACCLESFIELD RURAL DISTRICT.—“During the year the drainage of the village of Prestbury has been completed by the laying of 340 yards of additional sewers. In Upton 1,025 yards of sewers were laid. Borrowing powers in regard to Chelford sewerage scheme have now been granted and the work of constructing the sewers, &c., will be carried out forthwith.

“In Poynton 560 houses are now drained into sewers, the sewage being treated at Mill Hill. Samples of the effluent collected by the staff of the Mersey and Irwell Joint Committee were favourably reported on, as were also those analysed on your behalf.

“By agreement with the Macclesfield Corporation Authorities 23 houses in Upton, 55 in Prestbury, 50 in Butley and 26 in Tytherington are drained into the Borough sewers. On similar terms seven houses in Woodford and six houses in Nether Alderley are drained into the sewers of adjoining Urban Districts.

“A contract has been completed for the construction of 913 yards of sewers in Taxal—one of the constituent districts in the Whaley Bridge Joint Sewerage Area.

“A sewer is needed in Nether Alderley—adjoining the Alderley Edge Urban District—for the use of houses which are being built in both districts. Negotiations are in progress at the present time for joint provision and it is highly probable that a satisfactory arrangement will be made.”

MALPAS RURAL DISTRICT.—“No new works of sewerage have been carried out during 1912. The sewage for Malpas Town is disposed of by Dibdin's system, which is a bacteriological treatment of sewage. There are three outfalls on to three lots of filter beds, arranged on two tiers. No alterations or extensions have taken place in the disposal works during 1912. None of the district except Malpas Town has any system of sewers. In the small villages most of the houses have separate cesspools. Isolated cottages run their sewage into cesspools or into the nearest water-course. Most of the farms deposit their sewage on to the land.”

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NANTWICH RURAL DISTRICT.—“No actual work has yet been carried out in the matter of sewerage the large villages, but the scheme for Willaston is now about to be commenced. The scheme for Haslington has not yet received the sanction of the Local Government Board. The condition of the township is very bad and I hope that there will be no unnecessary delay in getting a scheme into working order.

“Broad Lane, Stapeley and London Road and Crewe Road, Willaston, are yet without any system of public drainage. The condition of these places is very bad indeed. The township of Shavington merits the Council's early attention. The drainage of the more urban portion of the township is second only in urgency to Willaston and Haslington. The township of Bunbury is not free from serious drainage defects and will need attention shortly.

“Sanction was received from the Local Government Board for the scheme for Willaston and Wistaston. Specifications and quantities were prepared and tenders invited for the same and this contract has now been let and the contract signed and the work is about to commence.

“Plans and estimates were prepared during the year for the sewerage and sewage disposal of Haslington, which were submitted to the Local Government Board and the Enquiry was held at Haslington in November last, when application was made to borrow £12,500 for this purpose. The Local Government Board have asked for one or two modifications in the Disposal Works in order to reduce the cost, which is very heavy. These are now being made and will be submitted to the Board in due course.

“Plans have also been prepared for the sewerage of London Road, Willaston. Estimates were obtained and the contract has been let and the work will shortly be commenced.

“The Mill Brook, Shavington and the watercourse at Big Oak, Coppenhall, have been cleaned out. The ditch opposite the Crewe Green Schools has been cleaned out several times during the year, but it will continue to be offensive until a sewerage system is provided for the Haslington village. The same remarks apply to the Broad Lane ditches and pit, which at present are very offensive.”

NORTHWICH RURAL DISTRICT.—“During the year considerable extensions have been made in Hartford, a new 9-inch sewer for 21

houses in Chester Road being laid and another 9-inch sewer for 11 new large houses being also laid. A new 6-inch sewer has been laid at Barnton to serve 13 houses and also new 6-inch and 9-inch sewers at Lostock Green for several houses, and at Leftwich a new 6-inch sewer for 18 houses and a slaughter house. The disposal of the sewage in the main townships is by septic tanks and percolating filters in five cases, by septic tanks and land irrigation in two cases and in nine septic tanks only. No complaints of these disposal works have been brought to my notice. At Barnton considerable improvements have taken place at both the Gunners-clough and riverside outfall works."

Mr. J. Birtwistle, Surveyor to the Council, reports very fully on the several schemes under his charge, as follows :—

"*Hartford.* A new 9-inch sewer has been laid in Chester road, to replace an old and faulty 6-inch sewer, about 270 yards in length. The old sewer was, in addition to being faulty, not laid at a suitable or necessary depth and was without ventilation. These advantages have been obtained with the new sewer. The new sewer deals with the sewage of 21 houses and a certain amount of road surface water. In addition to this I have supervised the construction of 13 intercepting chambers on branch drains connected with the sewer.

"The scheme for laying a new 9-inch sewer to replace the existing sewer and outfall tank on the S.W. side of the railway near Hartford station, has not, owing to pressure of other important work, been carried out at present, although the drawings and estimate have been approved by the Council and forwarded to the L. & N.-W. Railway Co. for their approval and consent to the structure to carry the sewer over their main line. The Railway Co., however, have not as yet given such consent to the Council's proposal, although I do not think it will be much longer delayed.

"The Council have decided that it is advisable to take up a loan for the remodelling of the outfall works, owing to their incapacity for present needs. It has also been decided to abolish the existing outfall tank, &c., at Hartford beach, to which about 26 houses drain and to construct a new sewer from that point to a terminus manhole on the Urban Council's Sewerage system some 660 lineal yards away. When this scheme is completed the sewage will be dealt with at the joint outfall works at Wallerscote. Owing to pressure of work in my department it was decided to call in an engineer to deal with the outfall works improvements

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and the laying of the sewer at Hartford beach. The new 9-inch sewer being laid for the benefit of nine large new dwelling-houses referred to in my last report has been completed and one out of the two outfall tanks in this locality abolished.

“Barnton.—The work of re-modelling the Gunnersclough Outfall Works has been completed and the works are now in a satisfactory condition. The County Medical Officer reports on the effluent as a ‘good one,’ and the County Analyst reports on the three samples forwarded to him as follows—first ‘good,’ and the second and third ‘very good.’

“The surface of the storm filter at the riverside works has been renewed owing to the difficulty of removing the residue from same after storms. In connection with the Low Level Scheme, the work of ventilating the pump well and screening of the sewage has been completed. Also, as the capacity of the well was very small, necessitating the emptying of same several times a day, the storage accommodation has been increased so that the pump need only be used once a day. These works are now in a satisfactory condition.

“Lostock Gralam.—The Outfall Works are now yielding a fairly good effluent owing to improved methods of management and to the use of two septic tanks jointly instead of separately as was formerly the case. The improved results have enabled me to temporarily defer the scheme for enlarging and remodelling these works until the supplemental water scheme for this district is carried through.

“The Lostock Green sewerage has been improved by the extension of the 9-inch and 6-inch sewers, so as to deal with the sewage from several cottages not previously connected. The lengths added being 60 yards of 9in. and about 80 yards of 6in.

“The sewerage systems of Back Boundary and Renshaw Streets being very unsatisfactory, as reported by the Inspector, the Council have accepted my estimate and the work is in the contractor’s hands for laying a new 9 inch sewer 75 yards in length. This will effect a great improvement in the drainage of the 23 houses abutting this street and abolish a number of small sewers draining in several directions.

“Leftwich.—Owing to complaints from the inhabitants in Hartford Road as to unpleasant odours arising from the sewerage

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system in this district, the Council at once gave instructions for a ventilating shaft to be fixed and since this has been executed no further complaints have been received. One of the sewers at Leftwich Green having become stopped, an occurrence which has been fairly common with this section, the Council instructed me to relay the same on improved lines for a distance of about 80 yards. When I say that this sewer consisted of three sizes of pipes, the largest of which was four inches, badly jointed and laid in an irregular manner, with two old and ill-constructed cesspools in the line and considering that it was the main sewer for about 18 houses and a slaughter-house, it will be readily understood that a great improvement has been effected in the sanitation of this locality. In some places the sewer was only about 12 inches deep. The new sewer is 6-inch diameter, and laid at a greater depth. This is one of the cases where an old sewer has become the property of the Council, although not laid by them and may be fairly termed a bad legacy.

“ Little Budworth.—The disposal of the sewage has been improved by the addition of a new septic tank, sludge pump, &c. Thanks to the generosity of two important landowners in the district, the work was carried out without serious burden upon the ratepayers.

“ Rudheath.—An extension of the 9-inch sewer in Richard Street has been carried out for the benefit of two new houses. The owner contributed the cost of this work.

“ Wincham.—The 6-inch sewer at Pickmere Lane has been extended at the expense of the owner for two new houses. A number of cases of diphtheria having occurred in Church Street and as the sewer was not provided with ventilation, a shaft for the purpose was at once fixed. Since this work has been carried out not a single further case has been notified from this locality.”

RUNCORN RURAL DISTRICT.—“Sewerage schemes have been laid down in the following portions of your district, viz. :—

1. Helsby, with sewage disposal works ; outfall to river.
2. Frodsham and Frodsham Lordship ; outfall to river.
3. Stockton Heath ; outfall to river.
4. Walton Inferior and Superior ; outfall to river.
5. Daresbury, with small sewage disposal works ; outfall reaches river.
6. Halton, with sewage disposal works ; outfall to river.
7. Weston and Weston Point ; with sewage disposal works . outfall to river.

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Sewerage schemes under consideration by the Local Government Board and on which inquiries have been held are for,

8. Moore and—

9. Grappenhall, Thelwall and Latchford Without; a combined scheme.

“It does not appear necessary to undertake further sewerage works in your district just at present. A much needed extension to the Frodsham Bridge and Quay portion of Frodsham has been carried out during the year 1912; this was rendered necessary by the extensive substitution of water-closets for privies in this neighbourhood under the operation of the Housing and Town Planning Act, 1909.”

TARVIN RURAL DISTRICT.—“There have been no new works of sewerage carried out in your district during 1912. Farndon and Tattenhall are still without a proper system of sewerage but are both before you for immediate consideration. The sewage is disposed of in most cases into the nearest water-course in a crude state. In some few cases it is filtered before entering the stream; in other cases it is deposited on the land. There have been no complaints during 1912 as to the disposal of sewage except from the Chester Waterworks Company and Dee Conservancy Board. No alterations or extensions have taken place in the disposal works during 1912.”

TINTWISTLE RURAL DISTRICT.—“New sewage works are in the course of erection at Tintwistle. Matley has also to erect a works to treat the sewage from the most populous portion of the district, owing to complaints made by the Mersey and Irwell Joint Committee. I submitted a special report in regard to site of same.”

WIRRAL RURAL DISTRICT.—“Sewage from the villages of Prenton, Noctorum, Upton, Bidston and Moreton passes through the Fender Valley Outfall Sewer. Sewage from Willaston, Gayton, Childer Thornton, Hooton and part of Eastham is treated in septic tanks and bacteria beds. Heswall, part of Eastham, Great Sutton, Little Sutton, Caldý, Poulton through Lower Bebington sewers and Grange through Hoylake sewers, discharge sewage directly into tidal waters. In 1910 land was acquired for the treatment of sewage and sanction obtained for sewerage of the village of Thornton Hough. Mr. F. E. Priest, engineer to the works, has kindly supplied the subjoined description of the sewerage of the township.

“Sewerage of Thornton Hough.—After a period of eight years occupied in the consideration of the schemes for the sewerage of this township and in the execution of the one ultimately decided upon and sanctioned by the Local Government Board, that scheme is now on the point of completion and it is hoped will be put into service immediately. The scheme embraces the sewerage of the village and the immediate surroundings with disposal works, on a site adjoining Raby Road and the brook which forms the boundary of the parishes of Thornton Hough and Raby. This site having an area of 2 acres, 3 roods, 25 perches is larger than is necessary for the present scheme and a part has therefore been fenced off for the purposes of the works and the remainder, rather more than half of the whole field, is reserved for other use as may be required hereafter. A cottage for the residence of the sewer attendant has been built in one corner of the site.

“The levels of the site and of the stream not permitting of treatment of the sewage and discharge of the effluent into the stream without pumping, provision has been made for the lifting of the sewage after treatment in tanks. Two centrifugal pumps are provided, the power to work them being supplied by oil engines, which also work air compressors which supply compressed air for the ejection of the sludge which is drawn off from the tank. The whole of the machinery is arranged in duplicate so as to provide a reserve machine in the event of failure of any part of the installation. The tank effluent is pumped into contact beds and after treatment therein flows by gravity to a percolating bed and thence flows through humus tanks into the stream.

“By the arrangement adopted at the works continuous pumping will not be necessary. A sewage tank under the engine house receives and holds the tank effluent at times when the pumps are not at work and by the use of contact beds of ample capacity the pumped tank effluent is stored therein after being pumped so as to be delivered at a uniform rate to the percolating bed. It will thus be possible to run the engines at full speed for a short time daily instead of prolonging the period of work at a slow rate as would be necessary if provision had not been made for the storage of the effluent. In this way considerable economy will be effected in the cost of pumping as well as much saving of the attendant's time. The works have been so designed as to be capable of considerable enlargement if and when the growth of the township makes it necessary.”

“EASTHAM SEWERAGE WORKS.—These works have been used for the treatment of a greater quantity of sewage than they were

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intended to deal with when first constructed, owing to the rapid increase in the population of the villages concerned. The result has been that the effluents were unsatisfactory as indicated by the chemical analysis appended. The Report of the County Analyst on a sample of this effluent taken on the 21st May, 1912, at Eastham Sewage Works, is as follows :—

Appearance in Tube	...	...	...	...	cloudy
Smell when heated to 100° F	...	...	...	...	sewage
Total Solid Matter at 212° F	...	...	...	34.	Grains per gallon
Total Mineral Matter at 356° F	...	...	...	32.8	„ „
Loss	...	...	...	1.2	„ „
Chlorine in Chlorides	...	...	...	5.9	„ „
Nitrogen in Nitrites	...	...	...	nil	„ „
Nitrogen in Nitrates	...	...	...	nil	„ „
Free Ammonia	...	...	...	1.5	„ „
Albuminoid Ammonia	...	...	...	.35	„ „
Oxygen absorbed in 3 minutes at 60° F	...	...	...	.44	„ „
Oxygen absorbed in 4 hours at 60° F	...	...	...	1.13	„ „
Alkalinity calculated as Free Lime	...	...	...	nil	„ „
Microscopical Examination of Deposit	...	...	...	...	organic
Suspended Matter	...	...	...	...	6.0

Remarks of Analyst :—An unsatisfactory effluent requiring more complete oxidation.

“The Council have given instructions that their Surveyor examine the works and report on how they may be extended so as to cope with the present condition of affairs. An enquiry was held by a Local Government Board Inspector at Willaston to examine a scheme put forward by the Council's Engineer (Mr. Priest), for the sewerage of Willaston, a township which has developed with great rapidity owing to the laying out of a building estate in close proximity to two railway stations with easy access to Liverpool. The sewerage of Heswall has also been a question before the Council, but the scheme to be adopted has up to the present not been determined.”

Section IX.—Rivers Pollution.

Your Council, through the Minutes of the proceedings of the Rivers Pollution Committee, know the many legal and other obstacles which have to be overcome before appropriate action can be taken to prevent pollution of the rivers in or flowing into your County. The Rivers Pollution Acts have their limitations, as your Council very well know. Some of these limitations are serious ones and are as well known to offenders against the purity of our streams as to your Council. Some of the most horrible polluting matter coming down into Cheshire rivers and canals has its origin in the colliery areas of North Staffordshire and those responsible for it know as well as we do that until we can point out that there exist some reasonably practicable and available means for rendering their effluents harmless, they are virtually exempt from the operation of these Acts. I have no intention of stating that they are deliberately evading their responsibilities, for they have honestly endeavoured in the majority of the cases to find out some means of purification of this "devil-liquor" (as it is very properly called), but have failed to do so: the other way of escape is there and very naturally for the time being they take advantage of it. But the effects on certain Cheshire streams, at one time I am told amongst the most beautiful in the country, has been appalling and will continue so until some reasonably practical manner of purifying the effluent can be discovered and put into operation. During the year I was very courteously co-opted as a member of the North Staffordshire Manufacturers' Committee for inquiring into this matter and we are shortly about to visit certain places in Derbyshire, Yorkshire and Durham for the purpose of inspecting certain plants which are being used for the prevention or purification of this spent liquor.

As regards other sources of pollution, these are being remedied as well as time permits. But in this connection I am very seriously handicapped by the fact that there is only myself to do this work and it is only possible for me to visit the various known actual or potential sources of pollution about once in every three months, which is of course not nearly often enough for the purpose of keeping a watch on these places. This is one of the principal reasons why I am asking your Council to appoint an Inspector to assist me generally in my work.

Some advance has been made during the year in the carrying out of works to prevent pollution of rivers and streams; how much

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remains to be done is a question which can only be answered when a complete rivers map of the whole of the County (excluding the area managed by the Mersey and Irwell Joint Committee) has been prepared with every actual or possible source of pollution marked on it—a labour of several years which I have only just begun. Some small idea of the amount of work can perhaps be gathered from this section of the Report and that dealing with sewerage and sewage disposal. I give a few instances taken somewhat haphazard from the Annual Reports for 1912 and omitting of course those which are constantly coming before your Council. The River Weaver is pretty extensively polluted at a large number of points, but so far only some half-dozen of these have been dealt with. The River Gowy is somewhat seriously polluted at Mickle Trafford, Ellesmere Port, Tattenhall Road and elsewhere. The River Dee and its many tributaries in the County is polluted at Farndon, Tattenhall, Churton Heath, Eccleston, Aldford, &c., &c. A number of smallish brooks in the Wirral are polluted, though seldom at any one special point to any large extent; innumerable houses, cesspools, &c., pour polluting matter into them and the aggregate effect is apt to be serious at certain times and places; the River Dane is open to fairly serious pollution from a number of different sources.

I append a few extracts from the Annual Reports of the Medical Officers of Health; many of these officers do not concern themselves with the matter as it is largely outside their jurisdiction. It would very much assist me in my work if they would keep me regularly acquainted with any sources of pollution arising in their respective districts.

CONGLETON MUNICIPAL BOROUGH.—“There is no pollution from the public sewage works. The River Dane is polluted by the effluent from Silversprings Bleach Works in Buglawton, by the discharge of the water closets of two Congleton factories into it and slightly by sewage from some of the outlying and distant parts of the district.”

CREWE MUNICIPAL BOROUGH.—“The Valley and North Brooks flow through the Borough. The Valley Brook is polluted from various sources before it enters the town and some pollution takes place in its course therein. The outfall sewers of Crewe are connected with adjacent streams by storm overflows which come into operation only on six times the dry weather flow.”

DUKINFIELD MUNICIPAL BOROUGH.—“The River Tame separates the two towns of Dukinfield and Ashton-under-Lyne. No

pollution enters the river directly from works or otherwise in the town, as the sewage is first of all treated at Bradley Hurst Farm and filtered before being discharged into the river."

"LOWER BEBINGTON URBAN DISTRICT.—"Several streams pass through your district, the waters of which have previously received sewage from houses and effluents from sewage purification works in neighbouring areas."

BOLLINGTON URBAN DISTRICT.—"Complaints of foul smells from the river have been very few. The character of the season in some measure accounts for this. As compared with the previous summer, when complaints were numerous, this one has been very wet. At the same time the attention given to the river course last year has undoubtedly had good results. There is, however, still a possibility of contamination from some of the works situate on its banks. One most important step has been taken in this matter which should bring most satisfactory results, viz. : the purchase by the Council of the water rights of the 'flume.' After March next when the notice to the tenant expires this flume will be cut out. Two results will follow this. First: no more water will be allowed to flow down it right along the side of the main road—a source of great nuisance in dry, hot weather—and secondly: more water will flow into the main river, and so held to keep it cleaner. The thanks of the Committee are due to those gentlemen whose generosity has brought this very desirable improvement about."

BROMBOROUGH URBAN DISTRICT.—"Several small streams which traverse the greater part of Wirral pass into the district to fall into the Mersey at Bromborough Pool. These streams are polluted by house drainage and by effluents from sewage works at various points in their course."

CHEADLE AND GATLEY URBAN DISTRICT.—"There were no complaints during the year about the smell arising from any of the streams in the district. Your Inspector was instructed to make observations if occasion should arise."

COMPSTALL URBAN DISTRICT.—"The River Etherow flows on the east and south-east side of the district and in work days is somewhat dirty owing to contamination higher up the stream."

ELLESMERE PORT AND WHITBY URBAN DISTRICT.—"The River Gowy forms part of the eastern boundary of the district and its waters are polluted by house drainage. The running of

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an acid effluent from a galvanising and paint works into a private ditch has been the subject of complaint and the Report of the County Analyst is to the effect that the effluent is an exceedingly bad one. The Medical Officer to the County Council has forwarded a copy of the report to the works concerned. Where water-courses have been found in an unsatisfactory state the owners have been compelled to take steps to clean them and where the Council considered it advisable instructions have been given to the Surveyor to pipe them."

HANDFORTH URBAN DISTRICT.—"Since last year the Handforth Brook, which was in a very foul state, has been cleaned out. The Dobbin Brook is still in want of a cleaning out.

HOLLINGWORTH URBAN DISTRICT.—"These have their sources in the more elevated parts of the District and their course is mostly derived, in the first instance, by spring water welling up from rock. They are later fed by surface water and in nearly every case reach the river with little or no pollution.

"The River Etherow is inspected by the Mersey and Irwell Joint Rivers' Pollution Committee and their Inspectors continue to give Hollingworth a clean report. There are no private sewage disposal works in Hollingworth. As regards effluents from manufacturing concerns, I can only refer, as in the last report, to the River Etherow Bleaching Company, who have their own settling tanks, which are passed by the Joint Committee's Inspectors."

HOOLE URBAN DISTRICT.—"There are no rivers or streams in the district that can become polluted."

HOYLAKE AND WEST KIRBY URBAN DISTRICT.—"There are no polluted rivers or streams in the district and in 1912 only one complaint was received concerning the boundary ditch between the Wirral Rural Area and your own. This was the result of heavy rainfall carrying rotting hay into the watercourse."

NESTON AND PARKGATE URBAN DISTRICT.—"There are no polluted rivers or streams, but ditches rendered offensive by the admission of imperfectly purified sewage effluents have been successfully dealt with."

SANDBACH URBAN DISTRICT.—"The only matter that gets into our brooks comes from further up the rivers and in my opinion what pollution there is is not injurious to the public health."

TARPORLEY URBAN DISTRICT.—“The streams are fairly free from pollution, with the exception of the brooks in the townships of Eaton and Utkinton, which are polluted by house drainage and farm sewage. There is no manufacturing waste or effluents entering them.”

WILMSLOW URBAN DISTRICT.—“No complaints of pollution were made during the year.”

WINSFORD URBAN DISTRICT.—“The River Weaver flows through the district from south to north and divides Over from Wharton. It flows through several towns both before and after Winsford, in the area of the Cheshire salt-field. It receives sewage pollution in many places and also much salt and brine. In the neighbourhood of Winsford subsidence of land is extensively taking place (from brine-pumping) and the bed of the river is itself subsiding. Immediately south of the town the river widens out into a lake of unknown depth. The volume of water is very great. The pollution caused by Winsford is crude sewage from a small area on the river bank too low to be drained into the out-fall sewers and from Hill Street, the same at the hamlet of Meadow Bank to the north and the effluent from the primitive sewage works. Considering the volume of water and its condition, I do not think it is made appreciably worse by its passage through Winsford.”

CHESTER RURAL DISTRICT.—“Some of the streams are polluted or are likely to be polluted. At Great Saughall the stream is polluted by the house drainage of the whole village. A sewage scheme is already prepared and waits the Local Government Board enquiry. House drainage pollutes the River Gowy at Mickle Trafford and some cottages pollute the brook at Abbots Meads. No manufacturing waste or effluents cause pollution.”

CONGLETON RURAL DISTRICT.—“The pollution from the Birchenwood Colliery still continues and also the Kidsgrove sewage, the North Stafford Canal and the source of the Wheelock are the sufferers in this respect. The polluters are situated in the neighbouring County of Stafford. There is a certain amount of lime coming down the Wheelock from Messrs. Brunner, Mond's works, but beyond killing the fish it does not do harm.”

MACCLESFIELD RURAL DISTRICT.—“The rivers within your district are the Bollin and the Dean, which run through it in a northerly direction; while the Goyt and the Dane respectively form part of its eastern and southern boundaries. The three

RIVERS POLLUTION.

first-named rivers are directly under the Mersey and Irwell Joint Committee, so far as the control of pollution is concerned. The effluent outfalls from sewage and drainage disposal works, where they discharge into streams in your district, were visited at intervals. There was less pollution found from these sources than has sometimes been observed."

MALPAS RURAL DISTRICT.—"In the Malpas Rural District there seems to be little pollution of the streams except from house and farm drainage. The farm drainage and sewage is nearly all dealt with on the land. No manufacturing waste or effluents cause pollution."

NANTWICH RURAL DISTRICT.—"The River Weaver is still polluted by the whole of the crude sewage of Nantwich and to some extent by that of the Borough of Crewe. I have not had reason to complain so much as in former years of the streams entering the district from Staffordshire. Probably this has been to some extent due to the heavy rainfall and the consequent full condition of the streams."

RUNCORN RURAL DISTRICT.—"No systematic inspection in reference to this matter has been carried out during 1912. The whole question was exhaustively inquired into several years ago, when Dr. Francis Vacher (the County Medical Officer at that time) accompanied your Inspector and myself over the entire area where streams are found and the result of a year's work was embodied in a full report, containing all the known facts of rivers pollution; since then considerable improvements have been made and I think very little additional pollution has been caused."

"Where extensive conversions of privies to water-closets has been carried out, there is a system of sewage treatment interposed before the river or stream is reached, as at Helsby, &c."

"The township of Moore at present contributes a degree of pollution to streams. Since my former report on this subject a Local Government Board Inquiry has been held in reference to the proposed sewerage scheme for the Parish of Moore and this is, I understand, at present under consideration by the Local Government Board."

"Finally, I may assert that the total amount of pollution of streams in your district is quite trivial when compared with the aggregate pollution of rivers and streams from communities situated on, or contributing pollution to, these waters before they reach your district."

RIVERS POLLUTION—REFUSE REMOVAL AND DISPOSAL.

TARVIN RURAL DISTRICT.—"All the tributary streams of the Gowy are more or less polluted by farm sewage, which should be dealt with on the land. Private sewage disposal works are likely to pollute the brook at Tattenhall and the Dec at Farndon. Solid matters, accumulation of cinders, refuse, sludge, etc.—The River Dee at Farndon, the Brook at Tattenhall and at Churton Heath. House Drainage.—The River Dee at Farndon, Tilston Brook, Churton Heath, Tattenhall, Milton Brook at Barrow, Clotton Brook from farm and house sewage at Clotton, Guilden Sutton from house drainage. Manufacturing waste or effluents. The Bone and Glue Works, Tattenhall Road, pollute the Gowy; the Creamery, Tattenhall; and a Cheese Factory at Churton Heath."

WIRRAL RURAL DISTRICT.—"There are certain streams running through your district which are polluted by house drainage. The stream which runs from Heswall to Raby Mere through the hamlet of Brimstage also receives the effluents from Clatterbridge Workhouse filter beds and the fever hospital sewage purification apparatus. The stream which runs through Thornton-Hough and Raby Vale into Raby Mere is fouled by sewage."

Residences which are distant from sewers and drained into cesspools not infrequently are found to have connected unauthorised overflow pipes to ditches and in this way the ditches soon became insanitary. A constant struggle is maintained in relation to the question of liability to cleanse the water courses and ditches and in some instances there is no question but that technically they must be regarded as un piped sewers."

Section X.—Refuse Removal and Disposal.

Curiously enough this is one of the matters in which Sanitary Authorities progress more slowly than in most other things affecting the public health and yet it was one of the things—and possibly at that time the most important of them—which led to the creation of Sanitary Authorities and Officials. The enormous numbers of privy-middens still in existence in thickly populated areas form a standing disgrace to public health administration. Until these are abolished no really effective blow can be struck at high infantile mortality and the prevalence of typhoid fever and other filth-borne

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diseases. One has only to look through the figures contained in the comparatively few extracts from Health Reports that I present herewith to realise the extent to which these gross abominations are still in large Towns and Urban districts. Much more wholesale action is needed if any improvement in public health is to be attained—action for instance which has been taken by the Runcorn Urban and Rural District Councils where loans have been obtained for the conversion of privy-middens to water-closets and the work of conversion carried out in a thorough and comprehensive manner.

CONGLETON MUNICIPAL BOROUGH.—“There are 2,361 pail closets, which are emptied weekly; 400 midden privies, or 100 less than last year, which are emptied on notice being given. The latter are gradually being replaced by pail or water closets and will at no very distant date cease to exist. Twenty-three water closets were put into houses previously supplied by pail or midden privies. The exact number of water closets in use cannot be definitely ascertained without a house to house visitation, which is in progress, but the number has been gradually increasing for some years and must now be very considerable.”

DUKINFIELD MUNICIPAL BOROUGH.—“At present there are four systems of closets, viz.:—ashpit privies, pails, automatic flush closets and fresh water closets. The approximate number of each type is appended:—

Ashpit Privies	...	...	834
Pails	...	...	508
Automatic Flush Closets	...	...	1322
Fresh Water Closets	...	...	630

“The accommodation of these several kinds are adequate to meet the requirements of the district. The Committee is gradually reducing the number of ashpit privies by conversions on to the water carriage system either by means of the automatic flush or fresh water. The number so dealt with during 1912 is as follows:—

No. of Houses dealt with...	...	121
„ Fresh Water Closets erected	...	80
„ Slop	45
„ Ashpit Privies dispensed with	...	103

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"The fresh water closets includes eight erected under the Factory and Workshops Act. These automatic flush closets are inspected monthly and reported on to the Sanitary Committee in tabular form."

STALYBRIDGE MUNICIPAL BOROUGH.—"The actual conversions from the privy midden and pail systems to the water-carriage system have this year constituted a record over any previous year. For the past five years it will be seen that the conversions work out as follows:—

1908		1909		1910		1911		1912	
T.W.	W.W.	T.W.	W.W.	T.W.	W.W.	T.W.	W.W.	T.W.	W.W.
103	28	81	18	50	78	107	27	143	55

NOTE.—[T.W. means fresh or town's water closets and W.W. means waste or slop water closets].

"Such a total as shown in the past year is very gratifying, as the town's water closets are maintained in a much higher proportion over the waste water closets, in spite of the water rate which is levied in each case. The properties in the Castle Hall district, which is the most congested part of the town, together with property on the outskirts of the town proper, have been considerably improved in consequence of these; and so we continue to abolish the system which involves the retention of excreta and other matter liable to decomposition close to the dwellings of the people and are substituting the sanitary water closet and ashbin. Several large privy middens have been replaced by blocks of water-closets and such alterations have been the means of the entire reconstruction of the house drainage of the premises concerned.

"Since the decision of the Sanitary Committee to give attention to water closets where a nuisance may exist through some kind of blockage, the town has been divided into three districts and it has been the custom of a man, provided with the necessary tools, to visit each district in turn, on one day in the week, to unstop such obstructions. Where it has been of a temporary character he has removed the same; but if the blockage has required attention to the drains, then preliminary notices have been sent to the agents or owners of the properties involved. By this means 96 water closets have been unstopped and 40 notices have been served requiring the owner to attend to the same. This procedure has produced the desired effect of assisting the property owner, as well as preventing a state of affairs from existing which would be anything but desirable."

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ALSAGER URBAN DISTRICT.—“C. H. Bennion, Lawton Road, Alsager, carries this out by contract. Approximate number of the following in the district and how frequently scavenged:—

Midden Privies 330	...	Fortnightly or as required.
Dry Ashpits 50	...	As required.
Pail Closets 2	...	Weekly.
Dustbins 630	...	Weekly.
Cesspools 30	...	As required.

“This has been done satisfactorily. As reported last year, ashes and other refuse are collected in boxes which are emptied into carts and removed every week.”

ASHTON-UPON-MERSEY URBAN DISTRICT.—“*Closet accommodation*: The number of privy middens at the beginning of the year was 582, since then 49 conversions have been made—40 under the Act of 1907—total number of privy middens is now 533.

Fresh Water Closets	...	...	1274
Waste Water Closets	...	...	16 ”

ALTRINCHAM URBAN DISTRICT.—“The total number of privy conversions into water closets up to date is 569. The number of privies reported for conversion during the year was 85. The number of privies actually converted to water closets having dry ashbins was 51.

“The rate of progress of the conversions has, to some extent, been retarded by the necessity to lay new sewers in place of the old sewers before the work of conversion can be completed and the Council are now determined to hasten on with this work. There are no cesspools in the district.

“The removal of dry house refuse is carried out weekly and the cleansing of privies, ashpits, &c., is regularly carried out by the Council’s workmen at periods of about once a month. Trade refuse is removed daily.”

LOWER BEBINGTON URBAN DISTRICT.—“Water carriage is the general rule throughout the district, the conservancy system having been abolished so far as houses within reach of the sewers are concerned. Three midden privies have been abolished

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and eight which still persist have their contents emptied on garden land for manurial purposes. There are two houses drained to cesspools."

BOLLINGTON URBAN DISTRICT.—"495 houses are now supplied with water closets—63 having been fixed during the year—the remainder being still dependent on the privy-midden system.

"The Health Committee have had the matter of privy-middens well under their notice and in the hope of eliminating all causes of complaint from these not being satisfactorily emptied, made an alteration in their staff. Before time the Assistant Nuisance Inspector was supposed to attend to this matter. Now the Nuisance Inspector is made primarily and directly responsible for them. Arrangements, too, have been made with certain of the neighbouring farmers, so that on notice being sent them by the Nuisance Inspector that certain ashpits require emptying, they agree to do so within a certain stipulated time. The result has been that whilst there is still room for further improvement, things are not so bad as they were. Movable ashbins with proper covering are not generally in use, there being about 203 only.

"Removal of house refuse is done at regular intervals by the Council's men. These intervals average about once in three weeks. There is no destructor provided, which is a matter for regret."

BOWDON URBAN DISTRICT.—"The scavenging is carried out by the Bowdon District Council and is quite satisfactory; no complaints have been made to me about it during the year. There are now 113 midden-privies, 169 ashpits, 9 pail closets and 402 dustbins, the midden-privies are being gradually done away with and substituted by w.c's. and dustbins."

COMPSTALL URBAN DISTRICT.—"There are 48 privy middens, earth or pail closets; cesspools 30. These are emptied regularly and disinfected. Frequent inspections have been made during the year. The house refuse is in nearly all cases burned by the tenants. The ashpit refuse is removed to a tip. This is well removed from the village and in no way causes a nuisance, nor can it become a source of contamination."

ELLESMERE PORT AND WHITBY URBAN DISTRICT.—"There are 1,988 water closets, 74 privies and a few pail closets.

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There have been six voluntary conversions from the conservancy system by owners, who had the advisability of doing this pointed out to them by the Council's officers. A report was presented by your Medical Officer upon the privy and ashpit accommodation in the Whitby area, incorporating the result of his inspection of 75 dwellings in that part of the district and submitting a tabulated statement shewing:—

32	houses	provided	with	water	closets.
2	„	„		movable	receptacles.
41	„	„		privy	middens.

All the houses without water closets were within easy reach of the sewers and it was resolved that the owners be requested to convert the privies into w.c's. The request has been responded to in six instances only and as the conditions cannot be considered in any sense adequate in a growing town, the matter ought to be firmly dealt with."

HOOLE URBAN DISTRICT.—"The whole of the privies in the district have been converted except in the outskirts and there is ample accommodation. In Piper's Ash there are 85 privies and five pail closets.

"The scavenging has been carried out daily by men in the employ of the Council. The streets have been kept clean and have been well watered whenever necessary. The

- (a) Midden privies, 35 in number, are scavenged monthly.
- (b) Dry ashpits, 56 (28 of which are covered), are scavenged weekly.
- (c) Pail closets, five, weekly.
- (d) Dust bins and boxes, 1,173, weekly.
- (e) Cesspools, seven, weekly."

HOYLAKES AND WEST KIRBY URBAN DISTRICT.—"The district is provided throughout its entire extent with water closets and the conservancy system has been abolished. Three midden privies were discovered, one was converted into a w.c. and two were done away with as there were water closets on the premises."

KNUTSFORD URBAN DISTRICT.—"There are approximately 58 privies, 149 slop or waste water closets, 158 peat pails and 869 water closets. During 1912 there have been 14 privies

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and 27 pail closets converted to water closets and 12 additional water closets provided to cottages which before had only a joint use of conveniences. I shall advise that water closets be insisted on in all new property and that conversions of privies and pails to water closets be steadily proceeded with."

RUNCORN URBAN DISTRICT.—"In my last report I indicated that the Town Planning Act had come into actual operation and since the date of that report the Authority adopted a resolution of far reaching consequence to the town and may I say that they acted quite within their powers and in my humble opinion adopted the most important resolution that has ever been adopted as regards the health of the community.

"The Council satisfied themselves that as they were now armed with powers that enabled them to go a step or two further than the Town Planning Act seemed to indicate, they determined that they would not make two bites of a cherry and they passed the famous resolution that gave them power to start privy conversions at once, with the most satisfactory result. I have always advocated water carriage as the only true and natural solution of excrement disposal. On May the 13th the work of conversion commenced and by the 31st December, 1912, eight hundred and fifty privies were converted into water closets. Contract No. 2 commenced on March the 2nd and the approximate number to be converted in order to complete is estimated at about 1,600 and these are expected to be completed in eighteen months.

"Little do the people of Runcorn generally know how much they are indebted to the intelligence, tact, zeal and energy of the Surveyor, Mr. James Wilding, for this great transformation, for he has from the beginning thrown his whole strength and masterly knowledge into the work, to the infinite benefit of the community at large. It will now be the duty of the Authority to see that the work of inspection of this beneficent work is constant and for it to be beneficial supervision must be active and intelligent sentimentalism should never be allowed to outweigh what is intended for public good and safety, there should be no excuse accepted for dirty and unclean habits, defaults of this kind are matters for a court of summary jurisdiction.

"At the end of the year there were two thousand and nineteen water closets, eight hundred and fifty privies having

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been converted during the year. There were forty-one privies with movable receptacles and seventeen waste water closets."

WINSFORD URBAN DISTRICT.—Mr. Hickson reports as follows:—"The approximate number of privies now in use is 1,190, being a reduction of 67 for the year. 43 have been converted to fresh water closets and 24 converted to peat pails. Fresh water closets are now required for all new property and a systematic effort is now being made for the first time to secure further conversions. The number of peat pails in use is 506, an increase of 20; 24 taking the place of privies, four being additional accommodation at old property, whilst eight have disappeared and been replaced by water closets. The approximate number of water closets is 738, an increase of 61 for the year; 43 replacing privies, 14 replacing peat pails, two at new houses and two additional at old houses.

"*Scavenging*.—106 covered galvanised ashbins have been provided to houses where defective ashpits were observed, or no ashpits existed. A farmer empties the privies once every three months. The Council's staff empties the peat pails, ashpits and ashbins. The contents of ashpits are still (in some streets) wheeled into the roadway and lie there some time before being carted away. This I described two years ago as "a dangerous nuisance, especially to school children." It is now considered to be probably one of the causes that has contributed to keep diphtheria prevalent during the last eighteen months. A systematic effort will be made in 1913 to abolish these old ashpits and substitute movable ashbins. The actual work of scavenging is in charge of the Surveyor, as he already has the staff and the horses and carts required for road work. He does not report to me."

BUCKLOW RURAL DISTRICT.—"The following figures are as close an estimate as is possible in the absence of a house-register of the district. Privies, 1,300; pails, 600; cesspools, 1,500; water closets, 1,578. There are no waste water or hand-flushed closets. Conversions of privies into water closets during year, 111."

MALPAS RURAL DISTRICT.—"Scavenging is not carried out by your Authority. Most of the houses in the district have ashpit privies or midden privies. These are emptied when required on to the land, each householder being responsible for the disposal of his own refuse. The approximate number of:—

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Midden Privies	130
Dry Ashpits	40
Pail Closets	215
Dustbins	0
Cesspools	570

“The present system seems fairly adequate, but improvements are needed and midden privies ought to be abolished—pail closets and covered dustbins or ashbins substituted.”

TARVIN RURAL DISTRICT.—“Scavenging is not carried out by your Authority. House refuse such as ashes is carted away by farmers for repairing their gateways and the scavenging of closets is done by the occupier, the contents being used or buried in the gardens. Approximately there are about:—

1,800 Midden privies.

1,200 Dry ashpits.

850 Pail closets (emptied weekly).

No record of dustbins.

780 Cesspools.

“There are too many midden privies in your district. These are being condemned and the pail closet system introduced whenever opportunity offers. There is inadequate closet accommodation in some parts of your district, as many as three houses use the same privy.”

Section XI.—Housing.

Once more it is a pleasure to be able to record the fact that a large amount of most useful work has been done by Local Authorities in the direction of improving housing conditions for people of the working class. The extracts from the several Medical Officers' Reports which I present shew this, in varying degree of course, in every single instance. Two Local Authorities wearying of private enterprise coming to the rescue to supply working-men's houses have embarked on schemes to this end

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themselves. Altrincham and Northwich Urban Districts are the ones to which I refer: the former has now built a number of these houses on an excellent plan and the latter is about to erect some 48 of these houses. In the Northwich Rural District also Messrs. Brunner, Mond & Co. have been enabled to take advantage of S. 27 of the Public Health Acts (Amendment) Act, 1907, relating to temporary buildings and have erected 50 detached bungalows in Winnington and barracks for 100 single men. I have seen these buildings and am much impressed with their possibilities, though like most temporary dwellings they are not adequately proof against variations in temperature; they are most excellently planned and fitted up. A full description of them is contained in the extract from the Surveyor's Report for this district.

Several Medical Officers of Health write with considerable feeling about the shortage of housing accommodation for working people and complain that they cannot in fairness take action to close insanitary or undesirable dwellings, because if they did so the occupants would be left without any chance of getting a home at all. This is a most serious aspect of the question and some remedy for it must be found if necessary sanitary work is not to be ultimately brought to a standstill.

It is the greatest pity imaginable that party politics is allowed to influence this highly important question of housing, but that this is the case is apparent to even the skimmer of the lightest daily papers. As Lord Henry Bentinck has aptly put it: "while Governments are legislating for the clamorous urban voter the less articulate countryman has hitherto been neglected." The several Housing Acts are not in my opinion sufficiently full of "shalls," though all too full of "mays," and the word "may" in an Act of Parliament, at any rate so far as the Public Health is concerned, is all too often interpreted to mean "need not bother to." The Housing Acts for Rural Districts, at all events, should in my opinion be administered by County Councils. It is in such Rural Districts that Councils, knowing their limited resources, fear to put these Acts into operation and the result is a depletion of rural population by what is in reality a compulsory emigration of young people from the rural areas to the urban areas or to the Colonies. The number of emigrants from the British Isles in 1890 was 218,116, in 1900 it was 168,825 and in 1910 it had risen to 397,848, *i.e.*, double what it was in 1900. Active enough in most other directions, as I freely and fully admit, Rural District Councils fear the financial burden or the doubt of ultimate recovery of public money advanced, which is almost inevitably coupled with free administration of these Acts.

The whole question of rural development is bound up intimately with the housing question and so, incidentally, is the successful working of the Small Holdings Act, for the latter acts as a counter-stimulant to emigration and fills what one might perhaps call the very small holder with the ambition to become a larger small-holder and thus tempts talent and industry to stay at home rather than seek doubtful El-Dorados in the lands beyond the seas.

We have been grasping very tentatively at this subject since the forcible words of Chas. Kingsley, who pointed out the effects of bad housing on morals and character in phrases which were almost lurid—if one may apply such a term to such earnest and luminous writings. And if the truth be told we have not got very much further on the road to the adequate housing of the workers of this country. The methods have perhaps altered—instead of the insanitary cottage ‘tied’ to the ‘Bad Squire’ of Chas. Kingsley’s day, we have the insanitary cottage ‘tied’ to the publican or Brewery Company or to the small landlord, both of whom know that they may safely trade on the scarcity of houses of the class I am discussing and both of whom, on the completion of the smallest sanitary improvement called for by Local Authorities, lose no time in raising the rent usually to such a point as will more than compensate them in a comparatively short time for the capital expended.

In many rural districts, as Mr. Hugh Aronson points out, the old condition of ‘villeinage’ still remains in essence; the farm labourers are housed in cottages which “go with the holding” and if the labourer should lose his post his home goes also, whilst if he loses his home his post goes too, a hopeless dilemma for the poor man to be faced with. The fact, for it would really seem to be a fact, that the ‘tied’ farm-labourer is a poorer man and less induced to give his best output of work than the man with a ‘free’ house does not seem to have sunk into the minds of many of our large farmers as yet.

The Scylla and Charybdis of the situation are respectively :—

- (1) No adoptive Act is really likely to be adopted if its adoption will throw any burden upon the rates.
- (2) If cottages are built according to most existing building bye-laws they cannot be so built as to let at a rent that the ordinary agricultural labourer can pay. The promoters of the Housing and Town Planning Act apparently recognised these two dangerous reefs for they

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attempted to make housing inspection and the condemnation of insanitary houses compulsory and at the same time an attempt was made to stimulate Local Authorities to build by lengthening the period of repayment of the necessary loan.

But has the Housing and Town Planning Act really avoided these difficulties? Are Local Authorities more ready to condemn insanitary dwellings than before? And are they more willing to embark on the building of houses for the working class population than they were before the passing of this Act? My experience, culled from various districts—none of which can be called at all seriously wanting in the carrying out of other sanitary measures—compels me to answer, “No” to all these queries. The facts still remain as they have been for many years—houses are not condemned as unfit for human habitation as they ought to be, or at any rate closing orders are not issued by the Councils concerned, for the simple reason, stated before, that if the occupants are to be forcibly turned out there is no place to which they can go and if Part III of the Act is to be adopted and the Council commences to build houses the rates are almost sure to suffer. Facts could be adduced to shew that the erection of cottages to suit the agricultural labourer cannot be economically effected under this Act, for it may be plainly stated that in this part of the country, at all events, the rental which can be afforded by farm labourers is limited by the figure of 3/- per week and I have never yet heard of any cottage suitable for such people which could be erected and prove self-maintaining (to say nothing of paying interest on capital invested) if it were let at a less rental than 4/- to 4/6 per week.

There is only one solution of the difficulty which is at all satisfactory and that is for Councils to take advantage of Section 27 of the Public Health Acts (Amendment) Act, 1907 and sanction the erection of temporary buildings, limiting the time for which these are to stand to a reasonably long period. Most temporary buildings, if properly put together and properly cared for, have a life of about 25 years or possibly more and with a little more care in building the disadvantages incidental to extremes of temperature can be minimised.

The only other possibility is for Councils to build two classes of working man's house—one class with a few extras in the way of accommodation than the other—and by charging a slightly higher rental for the better class house enable this to assist in reducing their loss in the lower class house. But the margin is

an exceedingly narrow one and one has to be specially favoured in the matter of site, labour and materials before success can be attained.

The following are the remarks of the District Medical Officers of Health on this subject. I have reproduced them rather fully because of the great importance of the subject :—

CONGLETON MUNICIPAL BOROUGH.—“The following is a list of what was effected in the year :—

Number of inspections made	...	...	82
„ of dwelling houses which on inspection were considered to be in a state so dangerous to health as to be unfit for human habitation			23
„ of representations made to the Local Authority with a view to making closing orders	...	...	21
„ of closing orders made	...	...	21
„ of dwelling houses, the defects in which were remedied without making closing orders...			20
„ of houses in process of being made habitable			33
„ of houses demolished	...	...	8
„ left to be dealt with	..	...	19

“More inspections might have been made but it was not thought well to let this branch of the matter unduly outrun that of getting the defects remedied and the process of remedy from various circumstances did not always advance so rapidly as was desirable, or as it might have done.

“In September, at the request of the Local Government Board, the Medical Officer made a special report on this subject, supplementary to his annual report for 1911, in which, after describing the character of the houses in Congleton, he mentioned that owing to the building of houses having been at a stand-still for some years, while the population had increased by about 600 in the last two, there was not an empty cottage in the town fit for habitation ; and that, on this account, the matter of condemning houses had to be approached with caution, otherwise the inhabitants would be without houses. He also stated that there did not seem to be any disposition on the part of builders to build houses and that it would be necessary to meet the difficulty in some way. On this report the Local Government Board communicated with you more than once, calling attention to the powers you have of providing houses and your obligation to provide them and requiring to know what you proposed to do. So far as is known nothing definite has been decided up to this time and certainly there is no

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sign of more houses being available in the near future. The only houses built in the year were two small villa residences and two cottages and these were built by private persons."

CREWE MUNICIPAL BOROUGH.—"The Assistant Overseer (Mr. A. Maywhort) has kindly allowed me to obtain from the rate books the following information with regard to dwelling houses, as recorded on June 30th, 1912 :—

Houses.	Number Occupied.	Number Empty.	Total No. of Houses.
Rated at £16 and under ...	8692	455	9147
Rated over £16	1230	22	1252
Total	9922	477	10399

"This classification on rateable value has been followed to afford information called for under the Housing and Town Planning Act.

Empty Houses.

(under wards and rateable value.)

Wards.	Under £5.	£5 and under £10.	£10 to £16 inclusive.	Over £16 and under £20.	£20 and under £30.	£30 and under £80.	£80 and over.	Total.
Central Ward ...	2	80	12	4	4	6	—	108
West Ward ...	1	173	11	1	2	1	—	189
North Ward ...	6	125	11	2	1	—	—	145
South Ward ...	4	20	10	1	—	—	—	35
	13	398	44	8	7	7	—	
	455			22				477

“The following figures denote the percentage of empty houses to total houses on the rate books on June 30th each year :—

Average for 16 years (1895-1911) 3.14

Percentage in 1912 ... 4.5

“The Borough Surveyor (Mr. George Eaton-Shore) has been good enough to give me the following figures as to plans passed and habitation certificates granted :—

		Plans.	Habitation Certificates.
Average Yearly No.	1891-1900 ...	263	268 (3 years only)
”	” 1901-1910 ...	148	141
Number in	1911 ...	33	28
”	” 1912 ...	19	16

“The number of plans submitted and habitation certificates granted are the lowest yet recorded.

“The paving of the following back passages has been completed during the year :—

1. South side of Bedford Street.
2. Rear of Gresty Road from Bedford Street to St. Clair Street.
3. Between Lincoln Street and Bright Street.
4. Rear of Nos. 98 to 112, West Street.
5. Rear of Nos. 111 to 119, Nantwich Road.

“There are 9,147 houses in the Borough to which the Housing and Town Planning Act applies and inspections were carried out in 1912 with results as appended.

No. of Houses.		No. found in good condition.	No. dealt with by Closing Order.	Result.	No. for which Notices served.	Result of Notices.		
				Closing Orders deter- mined.		No. remed- ied.	No. being remed- ied.	Nothing done.
Inspected under Section 15	} 33	8	0	0	25	18	5	2
Inspected under Section 17	} 25	0	7	0	18	9	1	8
Total	... 58	8	7	0	43	27	6	10

HOUSING.

"Seven houses were closed under Section 17 of the Act. One owner is putting four into a habitable condition. In the case of the other owner an extension of time has been given to enable the work to be done. Where the condition of the house was such that certain defects required attention, notices were served on the owner and in the majority of cases the needful repairs have been effected. In others an extension of time has been granted to the owners. One case of overcrowding was found in the routine inspections and four instances were found by other means. An informal notice was complied with in each case.

"There are 65 back-to-back houses in the Borough ; eight were demolished in 1911. Most of them are in blocks of four with ample ground space around them."

DUKINFIELD MUNICIPAL BOROUGH.—"The average inhabitants per house occupied is only 4.19 compared with 4.48 in 1901, so that the cases of overcrowding are very few indeed and are becoming less every year. We have a complete list of four-roomed houses where eight and upwards are living and the Inspector is very assiduous in tactfully altering matters where practicable. Judging from our reduced birth rate in recent years, in my opinion there is very little cause for anxiety on this score.

"We have a list of back-to-back houses and the worst class of property is kept under careful and periodical inspection and improvements and alterations are insisted upon being done when necessary. Overcrowding is carefully watched and the condition of the poorer and neglected children reported upon to the Inspector of the Prevention of Cruelty to Children Society.

"The house accommodation is, on the whole, good. Much of the worst property has been demolished or remains unoccupied. The majority of the people in the town belong to the working class and during the last few years excellent cottage houses have been built fitted with modern sanitary arrangements and conveniences and with plenty of air space. The number of plans submitted and passed for new houses during the year 1912 has only been five and compares unfavourably with previous years, viz. :—30 in 1911, 40 in 1910, 50 in 1908, 61 in 1907, 61 in 1906 and 24 in 1905. In every case the drains are thoroughly tested by the Surveyor and strict supervision is taken by him as regards structure and air space and fitness for habitation. No action has been taken under the "Housing of the Working Classes Act, 1900," as there are no common lodging houses in the district.

“In July, 1912, the following was the number of inhabited and empty houses in the borough :—

	Number of Houses		
	Inhabited	Empty	Total
Central Ward	... 1630	28	1658
East Ward	... 1709	37	1746
West Ward	... 1341	17	1358
Total	... 4680	82	4762

“There are 25 more inhabited houses than in 1911, a total which is made up as follows :—six less in the Central, two more in the East and 29 more in the West.

“If we compare this with the years from 1901, we find :—

	Number of Houses		
	Inhabited	Empty	Total
1901	... 4226	261	4487
1902	... 4234	197	4457
1903	... 4339	137	4476
1904	.. 4330	179	4509
1905	... 4342	191	4533
1906	... 4464	126	4590
1907	... 4513	76	4589
1908	... 4594	80	4674
1909	... 4592	84	4676
1910	... 4599	88	4687
1911	... 4655	60	4715
1912	... 4680	82	4762

“So that altogether the total increase of houses since 1901 is only 275, many of the older houses having been closed and demolished; the total number of inhabited houses has increased by 454.”

HYDE MUNICIPAL BOROUGH.—“The following tabular statement shows the number of houses inspected, notices served and the alterations and improvements made during the year :—

Number of Houses inspected	...	...	1830
„ Notices served	...	...	170
„ Houses considered unfit for habitation	...	...	87
„ Closing Orders made by Local Authority	...	...	0
„ Houses where defects were remedied without Orders being made	...	...	61
„ Houses closed voluntarily after notices served	...	...	3
„ Houses demolished voluntarily after notices served	...	...	4

HOUSING.

"Sixty-nine new houses have been certified fit for habitation during 1912. 130 dwelling houses have been inspected under Section 17 of the Act of 1909, 87 of which were considered unfit for habitation. The estimated number of houses within the limits of rent in Section 14 of the Act of 1909 is 7,447. The approximate number of back-to-back houses is 18. There is one cellar dwelling."

STALYBRIDGE MUNICIPAL BOROUGH.—"The Borough offers numerous advantages of a high commercial value, a river and a canal running through the town, an unequalled water supply and most excellent railway facilities, which give ready and direct access to all parts of the Kingdom and it seems to me that it only requires capital and enterprise to make Stalybridge one of the most progressive and prosperous hives of industry in the country.

"The people are on the whole well housed, though, as may be expected in an old town such as Stalybridge, there are many properties which must before long receive attention under the Housing, Town Planning, &c., Act, 1909. Commodious houses for the working classes are still in demand and until some steps are taken to provide them, your officials will be somewhat handicapped in dealing with certain tenements which are unsatisfactory as dwellings, or are at present overcrowded. During the past few years the building of cottages for the working classes has been practically at a standstill and private enterprise has so far failed to meet the demand.

"It is only to be expected that in an old town like ours there will be many dwellings which through unsatisfactory situation and surroundings, defective and improper construction, or neglect of reasonable repairs and cleanliness, have in course of time become very unsuitable homes for human beings. In some parts of the town the natural conformation of the land in the way of sudden depressions and elevations has contributed to the erection of dwellings which, judged according to modern requirements in sanitation must be considered most unsatisfactory and it is no easy matter to determine what is the best course of action to adopt in order to improve such dwellings.

"During the year many dwellings have been under observation and of them 31 were carefully inspected and reported upon, nine of them being represented as unfit for habitation and 22 of them as requiring various alterations and repairs to render them reasonably fit for human habitation.

TABULAR STATEMENT OF INSPECTIONS.

Number of Houses inspected	...	...	31
„ Inspections made	...	...	66
Houses represented as unfit for habitation	...		9
Closing Orders made by Local Authority	...		0
Closing Orders became operative	...		0
Defects remedied without Closing Order	...		9 closed
Defects remedied after Closing Order	...	Being Attended to.	
Closing Orders determined	...	...	0
Order to execute works under Sec. 15	...	...	14
Work executed under Sec. 15	...	...	2."

WALLASEY MUNICIPAL BOROUGH.—“In compliance with the provisions of the Housing Acts, the following 29 houses were represented as unfit for habitation:—

1, 2, 3, Smithy Lane (condemned several years ago, but re-occupied).

138, Wheatland Lane (cellar).

1 to 12, Field Cottages.

“Tower Cottage,” Mill Lane.

8 houses in May Court.

1, 3, 5 and 7, Wallasey Village.

“The following were considered to be unfit, but were dealt with without representation to the Committee:—

1 to 5, Little Street.

165 to 169, Wheatland Lane.

“The following Closing Orders were made (29 in number):

1, 2 and 3, Smithy Lane.

138, Wheatland Lane.

1 to 12, Field Cottages.

“Tower Cottage,” Mill Lane.

8 houses in May Court.

1, 3, 5 and 7, Wallasey Village.

“All the above were closed in accordance with the Orders.

“The following houses were demolished (five in number:

1, 2, 3 and 4 Robinson’s Cottages, Wallasey Village (represented in 1911).

“Tower Cottage,” Mill Lane.

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TABULAR INFORMATION WITH RESPECT TO INSANITARY PROPERTY
DEALT WITH IN WALLASEY DURING 1912.

No. of houses inspected under Section 17 of the H.T.P.A., 1909	...	..	... 29
No. of houses found unfit for habitation...			... 29
No. of houses represented to Local Authority for Closing Orders	...	...	... 29
No. of Closing Orders made	...	...	... 29
No. of houses where defects were remedied without making of Closing Orders...		...	... —
No. of houses made fit after making of Closing Order			3

GENERAL CHARACTER OF DEFECTS FOUND.

1. Lack of sufficient or through ventilation.
2. Inefficient water supply, *e.g.*, one standpipe for several houses.
3. Lack of proper w.c. accommodation.
4. Damp and dark rooms.
5. Lack of conveniences for decent living, *e.g.*, proper facilities for storing food, washing accommodation, &c.
6. General dilapidations.

“The following additional work has been done under Sections 14 and 15 of the Housing, Town Planning, &c., Act, 1909:—

Statutory Notices served	...	... 46
„ „ complied with		... 33
„ „ in hand	...	... 11
„ „ not complied with		... 2
Preliminary Notices served	...	... 61

“There was one appeal during the year (since withdrawn).

“In the work in regard to insanitary property there has always been kept in view the fact that any work of demolition must not be done too rapidly, so that hardships may not be inflicted on tenants by their being unable to find suitable houses in the time at their disposal.”

ALDERLEY EDGE URBAN DISTRICT.—“One new house was built during 1912. The accommodation is generally good and the supply sufficient. Two cases of over-crowding were found during the year and this condition was at once stopped. 302 general inspections of houses were made. 42 inspections were made under Section 17, Act of 1909. No houses were considered unfit for habitation.

“There were no defects of a serious character and no representation made to the Local Authority with a view to the making of closing orders. In 37 houses the defects notified were remedied without Closing Orders being made. There are no cellar dwellings in the district or lodging houses.”

ALSAGER URBAN DISTRICT.—“Number of new houses built during 1912, six. Number of dwelling houses inspected under Section 17, Act 1909, 60. Number of such houses unfit for habitation, none. Number of representations made to Local Authority, none. Number of houses where defects remedied without Closing Orders being made, seven. Number of closing orders made by Local Authority, none. Number of houses where defects remedied after Closing Orders made, none. Estimated or ascertained number of houses within limits of rent in Section 14, Act 1909, 350. Number of such houses in respect of which notice was served during 1912, no formal notices.”

ALTRINCHAM URBAN DISTRICT.—“Up to the present the number of houses inspected, under Section 17 of the 1909 Act, is four, which were found unfit for human habitation. A Closing Order was made in each case, resulting in the demolition of the property. The number of dwelling houses inspected up to date is 639; defects reported at 390 houses, at 136 the defects have been remedied.

“The general character of the defects found consists in damaged flooring, plaster on walls and minor structural defects, as well as the necessity for a large amount of internal decoration of walls and ceilings. The inspection of the district, under the (Inspection of District) Regulations, 1910, is being carried out under my direction by the Surveyor's Department.

“The Council are proceeding with the erection of dwellings under the Housing Acts and there are at present in occupation 22 four-roomed cottages, which are let at a rental of 4/9 per week and also 20 two-roomed cottage flats, four of which are

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let at 3/- per week and 16 at 3/6 per week. Eight more two-roomed cottage flats are in course of erection. There are also in course of erection eight four-roomed cottages and a further contract has been entered into for the construction of 24 cottages of five rooms, three of which are bedrooms. The planning of these cottages has had special consideration and allowance has been made for abundant open space and ventilation."

ASHTON-UPON-MERSEY URBAN DISTRICT.—"I am still of opinion that there is a sufficiency of good houses for the working classes in the district and no case for the Council to proceed under the Housing of the Working Classes Act. New houses are inspected during erection by the Council's Surveyor and finally examined prior to certificates of habitation being granted. During the year one case of overcrowding was brought to my notice and after the serving of a notice the tenants left the house, it being ultimately closed as unfit for habitation.

"Five Closing Orders have been made by the Council on my representation, in three cases the Orders have been determined, the houses having been made fit, in one case the house was pulled down to provide more open space for the surrounding property and in the last case the house is still closed, the Council having refused to determine the Order.

"Under the Housing (Inspection of District) Regulation, 1910, 165 houses have been inspected during the year, making 293 in all, the general character of the matters requiring attention were as follows:—

Insanitary Closet accommodation	...	40
Defective drainage	...	29
No free circulation of Air	..	5
Dampness of Walls	...	17
Insanitary Yards	...	45
Defective Rain Water Pipes	...	7
Defective Roofs...	...	6
Defective Waste Pipes	...	19
To Cleanse Houses	...	6
Repairing Ashpits	...	8

"Twenty-two Statutory Notices have been served for the carrying out of the above alterations and in all cases but one they have been complied with; this case is still proceeding."

HIGHER BEBINGTON URBAN DISTRICT.—“Under the Housing and Town Planning Act, 1909, very little has been done owing to the Inspector’s illness.

Number of new houses built during 1912	...	2
Number of dwelling houses inspected under Section 17, Act of 1909	... ..	19
Number of such houses considered unfit for habitation	... ..	0
Estimated or ascertained number of houses within limits of rent in Section 14 of Act of 1909	...	193
Number of such houses in respect of which notice was served during 1911	... ..	0

“There are no back-to-back houses or cellar dwellings in the district.”

LOWER BEBINGTON URBAN DISTRICT.—“Houses for artisans in the New Ferry district are needed in order to prevent overcrowding and the Council has had the question of providing dwellings for the working classes under consideration, but concluded that private enterprise would at an early date accomplish the work necessary to supply the houses required. Even in the most urban parts the houses have plenty of air-space and their surroundings generally are kept in a cleanly state. The Surveyor’s Department exercises a strict supervision over the erection of new houses. At the 1911 census there were 2,300 inhabited houses and this number has risen to 2,456 in December, 1912.

“Number of new houses built during 1912:—

Bebington	...	59
New Ferry	...	4
Port Sunlight	...	19
Total	...	82

“The following table shews the number of houses erected from 1907-1911 inclusive:—

1907	...	61
1908	...	16
1909	...	31
1910	...	80
1911	...	89

HOUSING.

"A large amount of work has been accomplished under the Housing and Town Planning Act, 1909; 71 houses were examined in detail as required in the Housing (Inspection of District) Regulations:—

Number of dwelling houses inspected under Section 17, Act of 1909	...	...	71
Number of such houses considered unfit for habitation	...	...	0
Number of representations made to Local Authority	...	...	71
Number of Closing Orders made by Local Authority	...	...	0
Number of houses where defects remedied without Closing Orders being made	...	...	25
Number of houses with work in progress	...	...	46
Number of houses where defects remedied after Closing Orders made	...	...	0
Estimated or ascertained number of houses within the limits of rent in Section 14, Act of 1909	...	...	1739
Number of such houses in respect of which notice was served during 1912	...	...	71
Number of such houses closed after notice	...	...	0
Number of such houses where Local Authority has executed necessary repairs	...	...	0
Approximate number of back-to-back houses	...	...	2
Number of cellar dwellings	..	...	0

"The Council is considering the question of applying to the Local Government Board for permission to prepare a Town Planning Scheme for the urban area."

BOLLINGTON URBAN DISTRICT.—"A special inspection has been made of the houses in the Square, off Church Street, by your Medical Officer, in company with the Nuisance Inspector and a report made on this matter to the Health Committee. The chief points noted were the general untidy condition of the streets and back yards, the want of proper ventilation in some of the houses and the uncleanly condition in which others of them were kept. In one case it was considered that there was overcrowding. These matters were taken up by the Council and notices served on the defaulters. Most of these were remedied and action was taken by the landlord in the case of the overcrowded dwelling. Since the year expired this house has been vacated by the former tenants. The Medical Officer has also visited, with the Nuisance Inspector, the houses which are built up against the earth, that is to say,

those against whose wall or walls the earth lies to a height above the ground floor. As before mentioned, special attention has been given to this class of property.

“The Highway Committee are considering the advisability of amending their Bye-laws on the lines of the most recent draft of the Local Government Board. The Committee have had before them plans of a number of houses with three bedrooms and they are ascertaining the price of land with a view to seeing whether it is possible to build houses which will repay the Council for their expenditure.”

BOWDON URBAN DISTRICT.—“The systematic house inspection made by Mr. Williams has been very thorough and no doubt will be beneficial to the district. 584 inspections have been made by him and numerous improvements and alterations suggested and have been made and mostly carried out. The inspection of the residential part of Bowdon has been the cause of great improvement in the property and although at first objected to by some owners, it has eventually been appreciated especially by the tenants. No houses have been condemned as unfit for habitation. There were 94 houses found with defects which were remedied without Closing Orders. There are no back-to-back houses in Bowdon and no cellar dwellings.”

BREDBURY AND ROMILEY URBAN DISTRICT.—“The house accommodation has been increased during 1912 by the erection of 12 new houses and these are all occupied. Plans for a larger number have been passed, as may be seen in the Inspector's report. In the middle of the year there were 1,432 occupied and 33 unoccupied houses in Bredbury and 740 occupied and 33 unoccupied houses in Romiley.

“As an indication of the growth of the district the following census returns for the past 70 years is instructive :—

Census.	1841	1851	1861	1871	1881	1891	1901	1911
Bredbury ...	3301	2990	3408	3596	3733	3901	4691	5786
Romiley ...	1465	1364	1468	1804	1819	1920	2416	2898
Total ...	4766	4354	4876	5400	5552	5821	7107	8684

HOUSING.

"In all the newer property there is sufficient air-space about the houses, but in some of the older property this has not been so well provided for nor maintained. One finds, on systematic inspection, that this is often the fault of the tenants who encroach on the space provided by erecting hen-houses, rabbit hutches, coal-sheds, etc. A watch has been kept on this practice and a check put to it when discovered, as it is not conducive to health.

"The Sanitary Inspector was appointed to make the inspections under the Inspection of District Regulations, under the supervision of the Medical Officer. Both officers have inspected together 173 houses during the year and 10 houses were found to be unfit for habitation, on account of general want of repair, causing dampness, insufficient or dilapidated ashpit privies, etc. Notices of these defects were sent to the owners, who had the work done forthwith to six of them. In one case a Closing Order relating to four houses was sent and the houses have since been closed. The general character of the defects found to exist was, general dilapidation due to want of painting and repair of woodwork, repair of roofs and repairing of yards and in one case the ashpit adjoined a hatting-planker's workshop, with a door communicating between them.

"There were 10 dwelling-houses which on inspection were considered to be in a state so dangerous or injurious to health as to be unfit for human habitation. No representations were made to the Local Authority with a view to the making of Closing Orders. One Closing Order was made relating to four houses, namely, Nos. 1, 3, 7 and 9, Bredbury Green, Bredbury. In six dwelling-houses the defects were remedied without the making of Closing Orders."

BROMBOROUGH URBAN DISTRICT.--"Many artisans and labourers employed in the works live in other districts. It is estimated that there are 260 houses under £16 rental, but the erection of a large number of artisans' dwellings is in contemplation by employers of labour. No new houses were built in 1912 and only nine in 1911.

Number of dwelling-houses inspected under			
Section 17, Act of 1909	...	...	24
Number of such houses considered unfit for			
habitation	...	...	1
			(empty for a long period)
Number of representations made to Local			
Authority	...	...	0

Number of houses where defects remedied without Closing Orders being made	...	6
		(proceeding)
Estimated or ascertained number of houses within the limits of rent in Section 14, Act of 1909	... ..	260
Number of such houses in respect of which notice was served during 1912	..	0."

BUGLAWTON URBAN DISTRICT.—“Last year it was reported that nine houses had been inspected in 1911 and their condition reported to you, when you authorised the necessary notices to be served. Early in this year the defects in all of them were remedied. This year the following additional work was done :—

Number of dwelling-houses inspected under and for the purposes of Section 17 of the Act of 1909	...	31
Number of dwelling-houses which on inspection were considered to be in a state so dangerous or injurious to health as to be unfit for human habitation	... ..	20
Number of representations made to the Local Authority with a view to making Closing Orders	...	0
Number of houses, the defects in which were remedied without making Closing Orders	... ..	6
Number of dwelling-houses in process of having defects remedied under informal notices	... ..	5
Leaving to be dealt with	... ..	9

The general character of the defects found were : defective drains, unsuitable or insufficient sanitary accommodation, dampness, unpaved yards or yards in bad condition in other respects and insufficient light or ventilation.”

CHEADLE AND GATLEY URBAN DISTRICT.—“In September, 1910, the Local Government Board issued certain regulations under Section 17 of the Housing and Town Planning Act. In these regulations it is required that the Medical Officer of Health should include in his Annual Report particulars and information in tabular form in regard to the number of dwelling-houses inspected under Section 17 of the Act of 1909. Your Council appointed, in October, 1911, your Medical Officer of Health and the Sanitary Inspector to make inspections under this Act. Inspections have been carried on during the year mostly in the Cheadle Hulme Wards.

HOUSING.

"Owing to the scattered nature of the district, not very many houses were inspected considering the area covered. The number of houses inspected was 192. No houses were considered to be in a state so dangerous or injurious to health as to be unfit for human habitation. No representations were made to the authority with a view to making of Closing Orders. No Closing Orders were made. Four dwelling-houses had defects remedied without making Closing Orders.

"The number of houses in the district within the limits of rent in Section 14 of the Act of 1909 is 1,350. The number of such houses in respect of which notice was served during 1912. Informal notice was served in reference to 10 houses. The Local Authority in no case had to execute any necessary repairs. The approximate number of back-to-back houses in the district is six. There are no cellar dwellings. The houses inspected were on the whole clean, commodious, well lighted and surrounded by plenty of air space.

"Your Council has taken part in conferences on town-planning with the neighbouring authorities and an area of 740 acres in the Adswold portion of the district has been taken first. Application has been made to the Local Government Board for permission to proceed with the scheme.

"77 new houses have been built and occupied in the district during the year, as compared with 112 in the previous year. They have all complied with your Council's bye-laws. They mostly consist of cottages in Cheadle and small villas and semi-detached houses in Cheadle Hulme South Ward. The houses were situated as follows :—

Cheadle Ward ...	...	...	22 mostly cottages.
Gatley Ward ...	...	...	10 semi-detached houses.
Cheadle Hulme North Ward ...	5	"	"
"	"	South	" ... 40 small villas mostly and semi-detached houses.

"In my previous Annual Reports I have had to remark on the want of suitable cottages for the working-class in Cheadle Hulme Wards. In 1911 enquiries were made by the Local Government Board as to what your Council were doing in the matter. Your Council appointed a small Sub-Committee to go into the matter and report. At the beginning of the past year they reported that in their opinion there was at present no need for any more cottages. I hope to be able to make a full report of the subject at an early date."

ELLESMERE PORT AND WHITBY URBAN DISTRICT.—“Inhabited houses had increased from 746 in 1901 to 1,963 at the 1911 census. In the former year the average number of persons per house was 5.47 and this had decreased to 5.2 at the last census. The large majority of the houses are artisans’ dwellings. There is no question but that the number of houses is inadequate for the workers in your town. Bedrooms are occupied both night and day and in some streets every house has lodgers in it. New streets are being laid out and building is proceeding rapidly. There is plenty of open space and speaking generally the surroundings of the houses are maintained in a cleanly condition. Your Council has done a large amount of work during 1912 under the Private Street Works Act. Seven new streets and 16 back passages have been levelled, sewered, channelled and paved. The undertaking of this work has contributed in a marked degree to improve the amenity of the dwellings.

“The number of new houses built and occupied in 1912 was 92. Your Surveyor exercises supervision over each stage of the erection of a new house. There are 42 houses in course of erection. The building of houses has not progressed at the same rate as in 1911 when 286 were erected. From the general prosperity of the town and from my own observations, I would conclude that the building of houses is not keeping pace with the increase in population and that overcrowding is being perpetuated.

“The number of inhabited houses at December 31st, 1912, was 2,183.

Number of dwelling-houses inspected under Section 17, Act of 1909	...	...	...	...	129
Number of such houses considered unfit for habitation					0
Number of representations made to Local Authority...					129
Number of Closing Orders made by Local Authority...					0
Number of houses where defects remedied without Closing Orders being made		...	...	...	30
Estimated or ascertained in number of houses within the limits of rent, Section 14, Act of 1909	...				421
Number of such houses in respect of which notice was served during 1911	...	...	...	...	129
Number of such houses closed after notice				...	0

Work is in progress in 88 houses. In 11 instances nothing has been done.

HOUSING.

"Your Council made application to the Local Government Board for authority to prepare a town planning scheme in respect of the Urban District of Ellesmere Port and Whitby and portions of the Rural Districts of Chester and Wirral and the Local Government Board held an Inquiry into such application. At the Inquiry an agreement was arrived at with the Wirral Rural District Council whereby their area was excluded from the proposed scheme, the Rural Authority undertaking to apply for town planning powers in respect of their district. A large parcel of the Chester area was also agreed to be excluded. The Council are now awaiting the decision of the Local Government Board in the matter and it is expected that the authority desired will be given in respect of the following areas :—

Urban District of Ellesmere Port and Whitby	3,172 acres
Rural District of Chester	... 367 "
Total	... 3,539 acres

HALE URBAN DISTRICT.—"Though the district is still developing as a whole, the main development is taking place on the 'Moss,' where artisans' dwellings continue to be built. These readily let, but the internal needs of the district are to my mind amply met. There is no overcrowding in the district and the houses are built with the maximum amount of air space around that can be exacted. New houses in the course of erection are liberally supervised at each successive stage. The general cleanliness round houses is good. The Housing and Town Planning Act, 1909, has, during the year, been carried out and a report made to you each month.

"I append a table giving a summary of the year's working.

	Houses Inspected.	Houses in which Defects were found.	Houses in which Defects were remedied.		
			(a) Informal Notices.	(b) Legal Notices.	
				P.H.A.	H. & T.P.A.
Over £16	437	180	103	66	...
Under £16	183	74	48	21	1
	620	254	151	87	1."

HANDFORTH URBAN DISTRICT.—“No new houses have been put up this year. No dwelling-houses were inspected under s. 17 Act of 1909.”

HAZEL GROVE AND BRAMHALL URBAN DISTRICT.—Here the information given in the Report is confined to the following statement :—

“Number of new houses built during 1912.—50.

Number of dwelling-houses inspected under s. 17 Act of 1909.—None specifically, although 711 general inspections of dwelling-houses were made during the year.

Number of such houses considered unfit for habitation.—None.

Estimated or ascertained number of houses within limits of rent in s. 14 of Act of 1909.—1402.

Number of such houses in respect of which notice was served during 1912.—None.

Number of such houses where Local Authority has executed necessary repairs, &c.—None.

Approximate number of back-to-back houses in district.—None.

Approximate number of cellar dwellings in district.—None.”

HOLLINGWORTH URBAN DISTRICT.—“No new houses were erected last year.

“Notice was sent in July last year to the landlords of certain property for necessary alterations under the Housing and Town Planning Act, the property being 135, Wednesough. The notice has not yet been complied with. A notice served on the landlord for improvements to 12 houses on Wednesough Green has now been complied with.

“There are now only 28 back-to-back houses, concerning 15 of which notices have been issued the landlords concerned. As a result of these notices 12 have been complied with and three remain to be complied with.

“The following is the tabular statement required by the Housing (Inspection of District) Regulations, 1910, relating to the dwelling-houses inspected under and for the purpose of Section 17 of the Act of 1909, during the year 1912 :—

HOUSING.

Number of dwelling-houses inspected	...	...	8
Number of dwelling-houses which, on inspection, were considered to be in a state so dangerous or injurious to health as to be unfit for human habitation	..		0
Number of dwelling-houses the defects in which were remedied without the making of Closing Orders	...		8
Number of dwelling-houses which, after the making of Closing Orders, were put into a fit state human habitation	...	...	0

“General character of the defects found to exist :—

Defective roofs, eaves, gutters, rain-pipes and gully traps.

Back-to-back houses, with want of air space and ventilation.

Defective floors, staircases, doors and ceilings, windows not made to open and deficient sanitary convenience.”

HOOLE URBAN DISTRICT.—“The erection of new houses is thoroughly supervised by the Council’s Consulting Surveyor. The house accommodation for the working classes is fully adequate for the needs of the district, the houses are well built, with ample space between. At the census there were 1,224 inhabited houses, which with the population of the Workhouse included gives an average of 4.8 persons per house, or 4.3 excluding the Workhouse. Four new houses have been in the course of erection, but are not yet completed. No action has been taken under the Housing of the Working Classes Act.

“In connection with the Housing and Town Planning Act, 1909, the Sanitary Inspector made inspections of 146 dwelling houses. In 82 houses everything was found in order and the premises in good condition. Of the remaining 64 houses informal notices were served for defects as shown below.

	Informal Notices served for defects.	Results of service of Notices.	
		Complied with.	Remaining in hand.
1. Closet Accommodation	2	2	—
2. Drainage	Nil	Nil	Nil
3. Condition of dwelling-house in regard to light, free circulation of air, dampness and cleanliness	13	8	5
4. Paving, Drainage and Sanitary Condition of yards and out-houses belonging to and occupied with dwelling-houses ...	64	35	29
Totals	79	45	34

“In no case was any house found injurious to health, nor were closing orders necessary to be served. All the 34 defects remaining in hand are being dealt with by the owners.

“The plans and estimates for paving back passages that were submitted to the Local Government Board were approved and the work was commenced in October. The contractor has completed six back passages during the year.”

HOYLAKES AND WEST KIRBY URBAN DISTRICT.—“There is no deficiency of modern well-built cottages as dwellings for the working classes. Nearly all the older habitations have been inspected and reported upon since the Housing and Town Planning Act, 1909, came into operation and a formal inspection of 25 cottages which were built some seventeen years ago and are over the limit of rent prescribed in S. 14 of the Act, was carried out. At each of these houses it was found that an apartment of about 700 cubic feet, containing a boiler for clothes and used as a back kitchen, had the window fixed so that it could not be opened. On my advice the owners of the property have been called upon to provide windows which can be opened. The local bye-law prescribes that the window of every habitable room must be made to open to at least one-half of its extent. As much of the household work of a cottage has to be done in these back kitchens, it is in my opinion

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reasonable to require that ventilation should be secured by windows which can be opened.

HOUSING, TOWN PLANNING, &c., ACT, 1909.

HOUSING INSPECTION, 1912.

Number of dwelling-houses inspected under Section 17, Act of 1909	54
Number of such houses considered unfit for habitation...	0
Number of representations made to Local Authority ...	46
Number of Closing Orders made by Local Authority ...	0
Number of houses where defects remedied without Closing Orders being made	29
Number of houses where defects remedied after Closing Order made	0
Estimated or ascertained number of houses within limits of rent in Section 14 of Act of 1909	860
Number of such houses in respect of which notice was served during 1912	29
Number of such houses closed after notice... ..	0
Number of such houses where Local Authority has executed necessary repairs, &c.	0
Approximate number of back to back houses in the district	6
Approximate number of cellar dwellings in the district...	0

“ Fifty-one new sheds have been dealt with during 1912, some of which, when not encroaching on the air space, have been allowed to remain under agreement. The rest have been removed, excepting only the seven mentioned in this report. It has been necessary to prosecute in only three cases. Most of these sheds are erected in ignorance of the Bye-laws and if notices were posted up in the passages warning people not to erect any structure without first obtaining the sanction of the Council, the number of these erections would probably be considerably reduced. They are usually of a most dilapidated character and often erected over gullies and drains. It is satisfactory to be able to report that contraventions of the Building Bye-laws are not as frequent as they were, most of the builders showing a willingness to meet the Bye-law requirements.”

KNUTSFORD URBAN DISTRICT.—

“ Number of houses inspected under Section 17 of Act of 1909	...	...	...	...	35
Number unfit for habitation	...	...	...	...	0
Number of representations	...	...	...	...	0
Number of Closing Orders	..	...	...	...	0
Number where defects were remedied without Closing Orders	...	...	...	...	4
Number remedied after Closing Orders	...	...	...	...	0

“ General character of defects :—Defective drains and paving, dampness, want of ventilation, insufficient or defective sanitary conveniences.

“ About 700 houses are within limits of rent in Section 14 of Act. There are 14 back-to-back houses. There were no new houses built during 1912. Mr. Marshall's time has been very fully occupied in numerous directions and the share of it which could be spared for housing inspection was almost entirely devoted to the “ Princess Street area.” The result of the Local Government Board enquiry on January 9th, 1912, relating to this area, was a decision to approach the property owners with a view to obtaining the necessary improvements by agreement and by joint action. Negotiations have been proceeding ever since and to place the Council in a correct legal position numerous notices have been served under both the Public Health Act and the Housing and Town Planning Act. The scheme which has finally taken shape and which there is good hope may be accepted without the necessity of any legal proceedings, involves the demolition of one house, to give means of access to the interior of the area and the removal of all the miscellaneous out-buildings which encumber it and the erection of new sanitary conveniences (water-closets), &c., in more suitable positions ; the whole to be carried out as one job by the Surveyor, on behalf of the respective owners.

“ The appeal against a Closing Order in the Silkmill Street case was dismissed. The two closed cottages in Gaskell Avenue have been demolished and on the site is being erected a shop which will form part of the existing contiguous cottage.

“ Mr. Marshall reports that sanitary defects were found in 30 houses out of 35 examined and notices were served. In two cases the defects were remedied ; in the remainder plans for alterations will have to be submitted.

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"The housing question in general remains as previously described. All the details under this heading, to which the Local Government Board attach much importance, have been given in many previous Reports. Close supervision is given to the construction of new houses in relation to bye-laws."

LYMM URBAN DISTRICT.—"In 1912 six new houses were built in the district. Systematic house to house inspection has been continued. I am of opinion that there is a shortage of cottages with three bedrooms, but the extent of this shortage we are not yet in a position to state. We find small families with the larger houses and *vice versa*. Up to the present we have been able fairly well to deal with the cases of actual overcrowding, but if we are to adhere with definite rigidity to 300 cubic feet per person in sleeping rooms, before long some more three bedroomed cottages will be needed. Again, a sanitary 'home' means more than builder or inspector can effect, it includes the intelligent co-operation of the tenant, it means cleanliness in house, person and surroundings. It means cleanly habits, soap and water and open windows. You will find two houses side by side, exactly similar in age and structure, one a home—the other a hovel. Much of this lies beyond the scope and power of Medical Officer of Health or Inspector, but often it renders much of their labour futile."

MARPLE URBAN DISTRICT.—

The number of dwellings inspected under this Act during the year was	...	...	...	86
The number of dwellings considered unfit for human habitation was	...	...	...	0
The number of defects remedied without making Closing Orders was	...	...	...	89

The Surveyor and Inspector writes:—"I would again draw the attention of the Council to the advantages to be gained under this Act. Under this Act they have power (subject to the approval of the Local Government Board) to prepare a town plan, which, when approved, has the effect of an Act of Parliament. By means of the Town Plan the Council would be able to decide—

- (1) The position and direction of new streets.
- (2) The width of new streets.
- (3) The class of house to be built in certain areas.
- (4) The position of works, factories, schools, public buildings, open spaces and playing fields.
- (5) The number of houses to the acre.

"The above are a few of the additional powers given to Local Authorities and are sufficient to show the importance and far-reaching effect of the Act; in fact, Local Authorities are now able to design extensions to their towns or village instead of, as in the past, being compelled to allow it to grow uncontrolled.

"The first point for the Council to decide is whether a town planning scheme is necessary. In order to arrive at a satisfactory decision, it is necessary to investigate how the district has developed in recent years. This is not a difficult matter and one is forced to admit that

1. It is the general practice to crowd as many houses on a plot of land as is allowed by the Bye-Laws.
2. That the bulk of the present buildings are situated on the old highways of the district, leaving the land between the highways undeveloped.

"These two points are to my mind sufficient to decide that a town plan is necessary; and, further, I am of opinion that Marple is in a particularly suitable condition for the Town Planning Act to be applied with great success, my reasons being as follows:—

1. That the bulk of the present houses are built on the old highways and the land behind the houses is undeveloped; and, if this land is left to speculative builders to develop, the result will probably be rows of houses crowded as close together as the Bye-Laws will allow.
2. That a town plan should be prepared before large estates are broken up, as it is evident that it would be better to deal with one large owner than with several small owners.
3. That several of the present roads need widening and this should be done before more buildings are erected or plots sold.
4. That at least one estate in this district has been surveyed and plotted out for houses with the minimum air space."

MIDDLEWICH URBAN DISTRICT.—"House accommodation is good and sufficient. The houses of the working classes are good structurally except in a few isolated instances where the defects are being remedied. Three houses closed as dangerous."

MOTTRAM URBAN DISTRICT.—"Eleven dwelling-houses were inspected under and for the purposes of section 17 of the Housing

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Act of 1909. No representations made to the Local Authority to close any house, nor were any Closing Orders made. Thirty houses where defects were found had such defects remedied without any Closing Order. This number includes 21 left over from 1911, which defects were only remedied in 1912. Eleven houses have been closed by serving the owners with informal notices. The chief defects found were : slopstone pipe too short and not trapped ; no gully trap ; pipe emptying into open drain ; defective roof ; flagging bad ; windows not made to open. One new house has been built. There are seven back-to-back houses and five cellar dwellings."

The Inspector writes :—"On receiving instructions from the Medical Officer I have inspected eleven houses under the above Act and have reported the conditions of same to the Council. Instructions were given to the owners to carry out improvements and alterations suggested by the Medical Officer and myself. Alterations have been carried out to nine houses and the two remaining are now receiving attention. In my last report there were 21 houses remaining in hand to be altered under the above Act. These have now been put in a proper sanitary condition. Eleven houses have been condemned as not fit for habitation and four have been pulled down and the remaining seven are now being taken down. In all cases the owners have agreed to carry out the alterations and improvements without serving statutory notices."

NANTWICH URBAN DISTRICT—"A considerable amount of house-to-house inspection has been accomplished and at the end of the year a number of Closing Orders under section 17 of the Housing and Town Planning Act were pending."

NESTON AND PARKGATE URBAN DISTRICT.—"The district has to face the problem of how to cope with the deficiency of dwellings for the working classes and many of the Council Meetings have been devoted to the solution of this question. Last year land was purchased by philanthropists who intended to build cottages and let them at rentals which would help to remove the difficulty, but beyond the purchase of land no further steps have been taken.

"Thirteen cottages have been demolished, viz. :—Two Rock Cottages, two Old Houses in Bridge Street, four constituting Eccleston's Row and five in Pyke's Weint.

"These were all hovels, damp, unventilated, insanitary and incapable of improvement even if the owners had attempted to rectify them. Four old cottages were made habitable by what

amounted to a reconstruction and by the purchase of land at the back good through ventilation was supplied. There are three houses against which demolition orders are in force, seven are under Closing Orders and work is being done voluntarily by the owners in connection with four others. Each step taken by the Council to try and improve the housing conditions has been hotly contested by interested parties, for owners contend that there is other property in the district which is no better than their own; tenants complain that no other cottages can be obtained at the same rental as the old ones. These dispossessed tenants are not regarded as desirable when cottages become vacant. Owners assert that they cannot get rid of the tenants and in some cases they have lived rent free for years. The Council has tried to assist these owners by police court proceedings, but finds that the Magistrates cannot grant ejectment orders. The result has been that warnings have been issued and penalties of jail have been threatened and by a slow dragging process the present position has been arrived at. I have discussed the subject of cottage building with builders in Neston and outside it and they all assert that cheap cottages cannot be built so as to give any return for their outlay, owing to the cost of labour and the increased cost of materials. The cost of land does not seem to be the chief argument adduced against building at the present time. Neither philanthropic effort nor speculation of private builders will solve your difficulty as the responsible Authority for the housing of the working classes. No cry can be raised that private enterprise has not been allowed a chance to compete, so that the solution lies in the Council acquiring land and building some 25 cottages. As money can be borrowed for a period of 80 years for this purpose, no great increase in the rates would be necessitated.

Number of dwelling-houses inspected under Section 17,	
Act of 1909	15
Number of such houses considered unfit for habitation...	7
Number of representations made to Local Authority ...	15
Number of Closing Orders made by Local Authority ...	3
Number of houses where defects remedied without Closing	
Orders being made	12
	(proceeding)
Number of houses where defects remedied after Closing	
Orders made	0
Estimated or ascertained number of houses within the	
limits of rent in Section 14, Act of 1909 ...	675
Number of such houses in respect of which notice was	
served during 1912	15
Number of such houses closed after notice ...	12

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“There are 945 houses in the district. The average number of persons per house at the 1911 Census was 4.9. Two streets have been widened; one from 9 feet to 21 feet and the other from 18 feet to 24 feet.”

NORTHWICH URBAN DISTRICT.—“In connection with this most essential sanitary requirement it must be realised that there is a great influx of labour to the district: the chemical works in the adjoining townships of Lostock and Winnington are undergoing great extensions and as a consequence the demand for cottages is most acute and overcrowding is very prevalent and it is utterly impossible to really deal with either—for they are interdependent—except by inflicting cruelty upon helpless victims.

“The Council has practically decided to erect some 48 new cottages in the town subject to approval by the Local Government Board: it will unquestionably be a great boon to the district.

“During the year some 93 new houses have been or are in process of being built, but they are mostly of a class too large in rent for the working-man. There are no houses to be had at all and when one agent had a small dilapidated cottage to let at 3/9 a week there were 18 applications in one day from married couples who were in lodgings for the house, which is a striking illustration of the need for cottages. During the year 187 houses were inspected, 16 of which were unfit for habitation and two have been made fit and six were closed. The other eight are in *status quo* and we cannot spare them bad as they are till other places are open for the occupiers to go to. Six Closing Orders were made by the Local Government Board out of 14 representations made to them. There are about 3,502 houses in the district within limits of rent in Section 14 of 1909 Act and about 132 back-to-back houses. No work has been undertaken by the Sanitary Authority itself in repairing houses. There are no cellar dwellings. Altogether 187 houses were inspected, of which 126 were defective and 61 in good condition.

The Sanitary Inspector reports:—“Six houses have been demolished owing to having become unfit for habitation. Four have been reconstructed and made habitable. There was one case of business premises being condemned as unfit for use through subsidence. The premises are now being demolished. Further houses are under consideration of the Council as unfit for habitation and will be dealt with when provision has been made for housing the tenants.

"I have inspected 187 houses under the Housing Acts during the year. In Whalley Road 68 cottages were inspected; the greater number of these houses are small, old and very much out of repair. The sanitary arrangements are primitive and inadequate, but the free air space does not permit of increased accommodation. A small number of the houses are modern and these are fitted with modern sanitary accommodation and in better repair. Nine houses in Williams' Square are in fairly good condition and of modern date. The drains of all the houses were untrapped but this received attention. There is no washing accommodation. In Smith's Court where there are 15 houses the houses are old and out of repair. Three are overcrowded. The roofs of four are defective and the windows on the ground floor do not open. Cawley's Court.—There are eight houses in this court and they are very old and small but in fairly good repair. Four are overcrowded and the sanitary arrangements are defective. York Place.—There are 32 houses in this square, 12 of which are inhabited by large families causing overcrowding in several. Lodgers were kept but these have been removed and the overcrowding stopped. None of the houses have any washing accommodation. Two of the ash-pits were dilapidated and three of the houses had closets indecent for use. The doors and windows of seven are very defective and the floors and stairs of five are very much decayed through old age. Only one house was found to be in a filthy state and this was caused through the drinking habits of the tenant.

"Warrington Road.—Forty-seven houses in this street have been inspected by me, eleven of which were overcrowded caused chiefly by more than one family residing in one house. Some of the tenants kept lodgers who were removed at my request. In 17 houses I found defects to floors, stairs, doors and windows. Ten were found to be in a dilapidated state and the Council have Closing Orders under consideration in respect of same. Recently six were found to have been repaired and put in good order. Many of the houses in Warrington Road are affected by subsidence and it is very desirable that other provision should be made for housing the people. Terms might be made with the Compensation Board to demolish as was arranged in the case of Tabley Street, especially if the Compensation Board could see their way to build cottages themselves on the lifting principle. This also applies to other parts of the district where the Board have taken property down.

"I have found it possible to get repairs done to property by interviewing owners where defects have been found but no

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Closing Orders have been served as there are no available houses to accommodate displaced tenants and overcrowding would only be made worse. The Council's proposals for building 48 workmen's cottages are practically complete for submitting to the Local Government Board and when these are erected some headway can be made. It is hoped that the rent will be low enough to meet the labouring man, as private owners do not seem disposed to build this class of property. They appear to be afraid of a slump following the present boom in trade."

RUNCORN URBAN DISTRICT.—"I am informed that there is some scarcity of housing accommodation, for the demand appears to be in excess of the supply and there does not seem to be much speculative building going on. Perhaps some enterprising person will take the hint. A scarcity of this kind in the presence of sanitary improvements and slum demolition may require the attention of the Authority before long."

SALE URBAN DISTRICT.—"There is a sufficient number of workmen's houses and they are in a satisfactory sanitary condition.

"Some 1,900 houses come under the Town Planning Act and some 500 inspections have been made during the year. No house was absolutely condemned, a few (three) have been made to meet requirements better by alterations and repairs."

SANDBACH URBAN DISTRICT.—"The housing accommodation for the working classes might with advantage be greater as all the houses are occupied and fresh arrivals in the town have great difficulty in getting a house. The houses visited are now in a good state of repair and air space and sanitary arrangements are satisfactory. There have been seven new houses erected during the year and one done away with.

"230 visits to houses have also been made by the Inspector (in addition to those under the 1910 Regulations) in connection with nuisances, complaints, house drainage, closet and ashpit accommodation, &c. No nuisances of very serious nature have been found to exist and no special difficulty has been experienced in obtaining the remedy of minor nuisances.

"The house-to-house inspection under the Regulations of 1910, which was commenced in 1911, has been carried on

during the year by the Inspector of Nuisances and the following are particulars of inspections made:—

Number of houses inspected	...	...	...	185
Number of preliminary notices served for remedy of minor defects	...	...	...	55

“None of the houses inspected have been considered dangerous or injurious to health and the defects found have not been of a serious nature. The inspection of the houses in the first list of streets, which was prepared in 1911, has been completed and a further list has been prepared and submitted to and approved by the Sanitary Committee. The records are kept in a separate book and embrace all the headings mentioned in Articles 2 and 3 of the Regulations. The records are also considered at the monthly meetings of the Sanitary Committee and a monthly report (containing a list of defects found) is placed before this Committee by the Inspector. The general character of the defects mainly concerns defective or inadequate ashpit and closet accommodation, defective gullies and drains and minor repairs.”

TARPORLEY URBAN DISTRICT.—“There were no new houses built during the year.

Number of dwelling-houses inspected under Section 17 of Act of 1909	...	...	...	242
Number of such houses considered unfit for habitation...				0
Number of representations made to Local Authority	..			46
Number of Closing Orders made by Local Authority	...			0
Number of houses where defects remedied without Closing Orders being made	...	...	...	39
Number of houses where defects remedied after Closing Orders made	...	...	...	0
Estimated or ascertained number of houses within limits of rent in Section 14 of Act of 1909	...		...	356
Number of such houses in respect of which notice was served during 1912	...	39 informal notices,	7 official	
Number of such houses closed after notice	...			0
Number of such houses where Local Authority has executed necessary repairs, &c.	...	...	...	0
Approximate number of back-to-back houses in district...				0
Approximate number of cellar dwellings in district	...			0

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"Classification of defects found in Inspection under Housing and Town Planning Act, 1909:—

	Defects.	Remedied.		In hand.
		Closing Order.	Without.	
Water (supply all sufficient, but some 300-400 yards away)...	32	0	10	22
Closet accommodation ...	70	0	6	64
Drainage ...	75	0	9	66
Condition as to light, free circulation of air, dampness and cleanliness ...	45	0	0	45
Paving of yard and outhouses ...	78	0	0	78

The Inspector adds:—"During the year I have inspected nearly every cottage in my district and from time to time called upon owners to remedy sanitary defects, which are generally complied with. Many of the cottages in the out-townships are old and have been built without damp-courses, some of them on low ground, others on bank sides with ground falling towards rear of cottages. Many of these cottages are thatched and have no spouts and are somewhat damp, especially in the winter months, but I don't know of any that you would call dangerous or injurious to health."

WILMSLOW URBAN DISTRICT.—"Twenty new houses were built during 1912. The character of houses for the working classes is satisfactory. No cases of overcrowding have come under notice. Bye-laws are in force relating to the construction of new houses. There are no back-to-back houses and no cellar dwellings.

"Ten dwelling houses were inspected under Section 17, Act of 1909. 324 general inspections were made. Four were considered to be unfit for habitation. Ten representations were made to the Council. No Closing Orders were made. In eight cases defects were remedied without the making of Closing Orders. Two cases were still under consideration at the end of the year."

WINSFORD URBAN DISTRICT.—"The work of housing inspection has received special attention. 134 houses have been inspected in detail by Mr. Hickson and afterwards visited by me with him. They are in various parts of the district and include the whole of that part of Hill Street where enteric fever broke out. The defects found have in all cases (except

the most recent ones) been the subject of special reports, from time to time, to the Health Committee and the Council. The result has been 20 statutory and 72 informal notices; and numerous personal interviews with owners, or their agents. In 43 instances, the whole of the improvements asked for have been carried out. In 37 instances written undertakings have been given to do the same; in 30 instances verbal promises; and the remainder are under similar consideration and negotiation.

Number of houses inspected under Section 17	...	134
Number of houses found unfit for habitation	...	6
Number of representations (for Closing Orders)	...	6
Number of Closing Orders	...	0
Number of houses remedied without Closing Orders	...	<div style="display: inline-block; vertical-align: middle;"> <div style="display: inline-block; vertical-align: middle;">43 completed</div> <div style="display: inline-block; vertical-align: middle;">67 promised</div> <div style="display: inline-block; vertical-align: middle;">24 under consideration</div> </div>
Number of houses remedied after Closing Order	...	0

“General character of defects found:—defective paving and drainage, unauthorised obstructive out-buildings, defective floors, damp walls, want of slopstones, defective and insanitary privies and ashpits. Six cases of overcrowding have been dealt with. Probably more exist, as there is at present a keen demand for cottages. Any new cottages built are of an exceptionally good class. The old ones vary in character in accordance with their respective ages. There were two new houses built in 1912.

“Supervision over the construction of new houses, in relation to bye-laws, has in the past been very slack. Local builders have submitted plans, drawn in a rough and ready way, sometimes in pencil, generally incomplete in detail and nearly always a single copy only, which when stamped as passed has been handed back to the builder, so that the Council has had no permanent record of the work sanctioned and the Surveyor has had no means of testing the correctness of its execution. This system is now being amended and brought up to date; and I am constantly pressing upon the Council the urgent necessity for an entire new set of bye-laws. They have been practically agreed to; and I am at a loss to understand the delay in submitting them to the Local Government Board.”

BUCKLOW RURAL DISTRICT.—“The housing problem is the most important practical matter at present in all my districts. Speculative building has ceased. In the industrial town of

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Winsford rents and rates are extremely low; and persons who really ought to be in the neighbouring towns (such as Northwich and Middlewich) find it worth their while to reside in Winsford. Thus an artificial shortage of houses is added to the natural shortage for the true residents. In the smaller residential town of Knutsford a similar result is produced by the proximity of Manchester. In the Rural District of Bucklow there are semi-urban parts which are short of cottages; and I am by no means prepared to admit that there are sufficient cottages for agricultural labourers in the more sparsely populated townships. The result is overcrowding of existing available cottages, with all the well-known attendant insanitary and immoral conditions; and with no possibility of amendment. To serve a nuisance notice to abate overcrowding is only to move the nuisance from one house to another.

"I wish to state as emphatically as possible that there is urgent need for more cottages, almost everywhere, from a public health point of view; but their provision will involve considerations from so many other points of view (many of which are not the immediate concern of the Medical Officer of Health), that I abstain from further comment; and leave the discovery and application of the remedy to the higher authorities and powers."

Mr. Metcalfe reports as follows:—"Inspections were proceeded with systematically and 174 houses were dealt with. The worst classes of property in the more Urban townships have now been inspected and it will enable me to proceed much more rapidly with the work; indeed I estimate that the district will be completely inspected within five years, or even in less time, provided no unforeseen circumstances arise. It was found necessary to apply for a Closing Order in connection with one house at Carrington and in all probability this house will be demolished early in 1913.

"A demolition order was issued in connection with the three cottages at Timperley, a photograph of which appeared in the report last year. These have now been demolished and the site cleared.

"In each locality the usual defects found were bad floors, dampness, defective ceilings and plastering, want of ventilation, bad paving and drainage and insanitary privies. These matters were dealt with by meeting the owners or agents and pointing out the defects, or by issuing Informal or Statutory Notices where required. Work has been carried out at 97

houses, at some it is now in progress and others are expected to be commenced at an early date.

"Many inspections were made in company with the Medical Officer of Health and according to his directions several houses in Styal and Carrington will be dealt with at an early date."

CHESTER RURAL DISTRICT.—"The following is a tabular statement of work done:—

Number of new houses built during 1912	...	37
Number of dwelling-houses inspected under Section 17 of Act of 1909	... ..	55
Number of such houses considered unfit for habitation.	..	1
Number of representations made to Local Authority	...	0
Number of houses where defects remedied without Closing Orders being made	... ..	18
Number of houses where defects remedied after Closing Orders made	... ..	0
Estimated or ascertained number of houses within limits of rent in Section 14 of Act of 1909..	...	1571
Number of such houses in respect of which notice was served during 1912	... ..	39
Number of such houses closed after notice	...	1
Number of such houses where Local Authority has executed necessary repairs, &c.	... ..	0
Approximate number of back-to-back houses in district		0
Approximate number of cellar dwellings in district	...	0

"Classification of Defects found in Inspection under Housing and Town Planning Act, 1909:—

	Defects.	Remedied. Closing Order.	Without.	In hand.
Closet accommodation	... 5	0	3	2
Want of pails (conversion)	... 29	0	6	23
Drainage	... 19	0	0	0
Condition as to light, free circulation of air, dampness and cleanliness	... 18	0	1	17
Paving of yard and outhouses	... 5	0	3	2
Overcrowding	... 2	0	2	0

"There is a sufficiency of houses for the working classes in your district."

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CONGLETON RURAL DISTRICT.—“Sixty-two houses were inspected. Of these five were considered unfit for habitation and notices which are now pending have been served on the owners to make them habitable. Two cases of overcrowding were found: one removed to a larger house, the other reduced the number living there. I hope next year we shall be able to get on with the inspection of houses a little faster.”

DISLEY RURAL DISTRICT.—“The following table shews the amount and character of work done :—

Number of new houses built during 1912 ...	...	22
Number of dwelling-houses inspected under Sec. 17 of Act of 1909 ...	...	92
Number of such houses considered unfit for habitation...		0
Number of houses where defects remedied <i>without</i> Closing Orders being made ..	...	17
Number of houses where defects remedied <i>after</i> Closing Orders made ...	...	0
Estimated or ascertained number of houses within limits of rent in Sec. 14 of Act of 1909	...	655
Number of such houses in respect of which notice was served during 1912 ...	...	0
Approximate number of back-to-back houses in district		6
Number of cellar dwellings in district ...	...	0

MACCLESFIELD RURAL DISTRICT.—“The work of inspection of dwelling-houses under the Local Government Board's order of 13th September, 1910, has been steadily carried out during the year and 615 inspections have been made, in connection with which 508 notices requiring alterations have been complied with. In one case prosecution was instituted, application to the magistrates for an ejectment order being necessary before a tenant could be induced to leave a house regarding which a Closing Order had already been made. A break in the work of house inspection is now to be expected owing to the resignation of the Assistant Inspector.

“The character of the houses occupied by the working classes throughout your district varies considerably. In Poynton where coal mining and several small industries are carried on and where the estate owners have taken a philanthropic interest in the housing of their employees and tenants, the houses are substantially built and are provided with water supplies,

drainage, gas, gardens, allotments and means of recreation, while worn out houses are pulled down and replaced. A portion of Taxal forms part of a busy industrial community, where wages are good and remunerative rents can be afforded. Here substantial stone cottages are being built. In sparsely populated districts houses for the working classes are rarely built. On some estates the old ones are patched and maintained in comfortable order, while on others repairs of any kind seem only to be undertaken after notices or requirements from us. In some instances the owner takes such notices or requirements to the occupier and gives him the option of fulfilling them or vacating the house, which, in the latter case, is left to fall into decay, unless some town dweller with means and a desire for a country life takes it on a lease, indemnifying the owner against the requirements of the Local Authority. Overcrowding is rarely met with. Should it occur, peaceful persuasion is the method adopted until some other remedy presents itself.

“During the last five years 84 working class houses have been built or are in progress. Of these 25 are in Poynton and 30 in Taxal. In three instances Public Elementary Schools which failed to meet the requirements of the Board of Education were closed as schools and converted into comfortable cottages where such were badly needed. The Rural Model Bylaws which control only matters pertaining to health are in force throughout the district and are carefully administered, no complaint having ever been received of their being unduly restrictive or a hindrance to building.”

MALPAS RURAL DISTRICT.—“The following table shews the work done :—

Number of new houses built during 1912 ...	...	1
Number of dwelling-houses inspected under Section 17 of Act of 1909 ...	...	69
Number of such houses considered unfit for habitation...		0
Number of representations made to Local Authority ..		41
Number of Closing Orders made by Local Authority ...		0
Number of houses where defects remedied without Closing Orders being made ...	...	35
Number of houses where defects remedied after Closing Orders made ...	...	0
Estimated or ascertained number of houses within limits of rent in Section 14 of Act of 1909	871

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Number of such houses in respect of which notice was served during 1912	41
Number of such houses closed after notice...	...	...	...	0
Number of such houses where Local Authority has executed necessary repairs, &c.	...	...	...	0
Number of back-to-back houses in district...	...	...	...	0
Number of cellar dwellings in district	...	...	...	0

“Classification of defects found in Inspection under Housing and Town Planning Act, 1909 :—

	Defects.	Closing Order.	Remedied Without.	In hand.
Water supply ..	... 2	0	0	2
Closet accommodation	... 11	0	11	0
Drainage ...	... 32	0	30	2
Condition as to light, free circulation of air, dampness and cleanliness	... 8	0	7	1
Paving of yard and outhouses	... 6	0	6	0
Any defects in other matters which may tend to render house dangerous or injurious to health	8	0	7	1
Defective roofs	... 6	0	5	1

There is a slight insufficiency of workmen's cottages in the district.”

NANTWICH RURAL DISTRICT.—“The work of inspecting the houses of the district and tabulating records of these inspections, has been pursued unremittingly by the Inspector. Considerable improvements have been effected and there is prospect of still further improvement. There is a shortage of good cottages in some parts of the district. The Council have for years past at times thought of building cottages in places where there is a deficiency and where the owners of the land are not willing to make such provision. I hope that they will have sufficient courage to do so. I believe it to be of the highest importance to the country that as large a population as possible should be supported in agricultural areas. If the venture should not be directly remunerative I think that the financial loss would only be very small and the eventual gain enormous. Personally I should greatly like to see a system of State-assisted cottage ownership put into operation.

The Inspector adds :—“The district has been systematically inspected and the results of the inspections journalized. House to house inspections, in accordance with Section 17 of the Housing

and Town Planning Act of 1909, have been made in the hamlets and villages of Audlem, Baddiley, Bunbury, Burleydam, Calveley, Coppenhall, Church Minshull, Doddington, Haughton, Haslington, Hough, Hunsterson, Newhall, Shavington, Stapeley, Weston, Willaston and Wybunbury. General inspections were made in the hamlets and villages in the whole of your district.

"In the course of my inspections I frequently found it necessary to call the attention of tenants to the insanitary conditions which where due entirely to their own dirty habits. In some instances I found that the tenants not only allowed dirt and filth to accumulate on the surface near the dwelling, but also allowed it to accumulate indoors. It was apparently too much trouble to remove it to the outside. Such tenants not only create a nuisance dangerous to their own health—they are a source of annoyance and danger to the health of their neighbours. The serving of a notice upon them for creating a nuisance is regarded by many of them as a formal matter. If dirty tenants knew that they could be definitely punished for their wilful disregard of the laws of health, for neglecting to take care of other people's property and for running the risk of spreading disease in the district, it would be possible to solve the problem of the dirty tenant.

"The following table summarises the action which has been taken under Section 17 of the 1909 Act and the results which have followed.

TOWNSHIP.	Con- demned.	Informal Notices served.	Improve- ments in conse- quence.	No. of Houses Closed.	Re- opened after improve- ments.	No. of Houses pulled down.	Back to back Houses.
Audlem	1	1	...	...	...	...
Baddiley	7	6 (1 in hand)	...	...	...	...
Bunbury ...	1	3	1 (2 in hand)	...	...	1	...
Burleydam	3	3	...	...	...	...
Calveley	12	12	...	...	...	...
Coppenhall	13	In hand	...	...	...	...
Church Min- shull	5	5	...	...	...	...
Haslington	4	2 (2 in hand)	...	...	...	...
Hough	2	2	...	...	...	...
Newhall	2	2	...	...	...	...
Shavington	13	13
Stapeley	1	In hand
Weston	1	1
Willaston	11	11
Wybunbury ...	3	6	3	2	...	1	...
	4	84	62	2	...	2	...

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The houses inspected contain the following number of rooms :—

No. of Houses.	Ground Floor.	First Floor.	Attics.
1	1 & Pantry, etc.	1	...
62	1 "	2	...
15	1 "	3	...
80	2 "	2	...
65	2 "	3	...
5	2 "	5	...
1	3 "	2	...
1	3 "	5	...
1	3 "	...	...
1	5 "	5	...

Total houses inspected—232.

"The above table shows that two cottages have been pulled down—built in lieu thereof, one—voluntarily closed by owner, two. Bedrooms have been built over sculleries belonging to three cottages for the purpose of providing more sleeping-room accommodation. There is a considerable number of cottages in your district with two bedrooms only and two rooms on ground floor, provided with a scullery, over which a bedroom could be built at a small cost if the owners could be induced to do this. The advantage of an additional bedroom in such cases would be immense, and in many cases would prevent overcrowding.

"During the year great improvements have been made in the housing of the agricultural labourers on the Houghton Estate. The owner of the estate merits the highest commendation for his manifest interest in the labourers and their families residing on the estate. The interest shown is more than appreciated by them. Several owners of cottages have been induced to make improvements in the lighting, ventilating, paving, draining and spouting of their cottages. In several cases damp-proof courses have been inserted to prevent damp rising up the walls and spouting fixed to prevent it descending. In some cases the gables and walls have been rendered with portland cement to prevent dampness caused by penetration. Dampness affects buildings in three ways. It ascends, descends and penetrates. These causes should be borne in mind when cottages are being erected, otherwise trouble is sure to follow. The erection of cottages for the convenience of agricultural labourers in your district offers little inducement to private enterprise. Your Council, therefore, should take the question of providing cottages for agricultural labourers where they are needed into serious consideration."

NORTHWICH RURAL DISTRICT.—“The need for cottages throughout the district is still very acute and as there are great extensions of works at Winnington and Lostock pending, the overcrowding is greater than it was.

“At Winnington 50 bungalows (a detailed description of which appears in the Surveyor's report) have been erected and the only objection to them is that the material is corrugated iron. They are however supposed to be temporary and to be evacuated in five years, but as there appears to be a very remote possibility that they will be superfluous in that time, it will be somewhat difficult to turn 50 families into the street. In addition to these bungalows a barracks for 100 or 200 single men has also been erected at Winnington, but as these seem mostly to accommodate new comers they do nothing to alleviate the shortage of cheap cottages. As these bungalows have now become an accomplished fact it seems anomalous that such places could not be erected in the more rural parts where the farm labourers find such difficulty in getting houses: and if the walls were wood and the roof slate they would make much healthier dwellings, for no experienced horse or cowkeeper will house his animals under iron, knowing that the variable temperature is not calculated to make them thrive. It ought to be an absolute law if allowed that each must be detached and stand upon say one-twelfth of an acre of land.

“During the year 29 new houses have been built and 315 have been inspected under the new Act. A very excellent record of work accomplished is found, for 53 were found so dilapidated as to be unfit for habitation. Most of these were at Lostock Gralam, where some years ago several streets of new houses were run up in haste and were of an exceedingly poor quality. Although no representations were made to the Sanitary Authority and no Closing Orders made, the owners overhauled these houses and put them in a sound and good state of repair. 138 houses were found with defects which were remedied without Closing Orders being made. It is estimated that there are about 2,240 houses under the £16 per annum rental and there are no back-to-back houses nor cellar dwellings. The Sanitary Authority has not undertaken any repairs itself. No Closing Orders have been made by the Sanitary Authority for this class of property.

The Inspector adds: “Systematic inspection made under these regulations of all houses which come under the operations of the Housing and Town Planning Act, 1909, of which there are 4,237 within the district under £16 rateable value, has proceeded satisfactorily; of the 315 inspections made under the Act 53

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houses have been condemned under Section 17 as unfit for habitation on the report of the Medical Officer of Health, six being in Barnton, two in Nether Peover, 37 in Lostock Gralam, one in Weaverham, two in Delamere, four in Cuddington and one in Marston and on the Clerk first informing the owners that the Council intended issuing Closing Orders if such work was not done as would meet the requirements of the Council, the desired results have been attained without the necessity of issuing such Orders. The meeting of the owners or their representatives and going fully into the matter with them, the reasonableness of the requirements has been apparent to them and has in all cases been accepted as such and the work done. Various defects such as insufficient ventilation, defective windows, floors, roofs and brickwork was found at 69 houses, the work being executed by the owners on the work necessary being brought to their notice and at 16 houses defective drainage was remedied in a similar manner.

Mr. J. Birtwistle, Surveyor, reports as under :—

“ Fifty bungalows have been erected in the township of Winnington by an important local firm. The foundations are of bricks and damp-course, the walls timber framed, lined with match-boarding on the inside and felt and corrugated iron on the outside and the roof is constructed in a similar manner. A fire-place is provided in each room and connected to a central chimney stack of bricks. The rooms to each are kitchen, parlour, two bedrooms, scullery, coals and W.C. These living rooms are well lighted and ventilated and the artificial light is electricity. Each building stands in its own grounds and the distance separating them is 9 feet. As a precaution against fire a patent hand chemical fire extinguisher is fixed in every bungalow. The drainage system is of good design.

“ The Council considered they could not deal with these buildings under their present Bye-laws and as they were required for the development of works and were only intended to be temporary, they applied to the Local Government Board for power to adopt Section 27 of the Public Health Acts Amendment Act, 1907, for the contributory place of Winnington. The section has now become operative and the term of five years has been fixed for the buildings to stand. The tenants speak highly of the comfort and convenience they find in them. In the same township the firm before referred to have erected barracks of the materials previously described for the bungalows capable of accommodating 100 single men. The sleeping accommodation is provided in two dormitories with central corridors and 25 cubicles on each side of same with space for one bed. Each cubicle is lighted and

the dividing and main partitions are 6 $\frac{3}{4}$ ft. high. The buildings are ventilated by means of fresh air inlets near the hot water radiators and roof extractors. Four exits to each are provided in case of fire and they are heated by hot water from a detached heating apparatus. The artificial light is obtained from an aerogen gas producing plant, separated from the buildings. In connection but detached from the above are dining and recreation rooms, with canteen and sets of ranges for cooking constructed in brick-work, asbestos sheeting being used where necessary as a precaution against fire; ranges of lavatories, W.C.'s and urinals are also provided. A caretaker's residence is built adjoining the dining and recreation rooms. These buildings also have been dealt with under Section 27 of the Public Health Acts Amendment Act, 1907. The sewerage systems of both barracks and bungalows are connected to the Council's system in the locality and the firm supply them with water from their own works."

RUNCORN RURAL DISTRICT.—"The action undertaken by your Council, acting on the various recommendations of the strong Housing and Town Planning Committee, which you appointed to receive the reports of your Medical Officer and Inspector and Surveyors, has been already alluded to and the figures relating to these are embraced in the tabular statements appearing in this report. Over 200 houses have been inspected and extensive alterations and improvements have been carried out in all the townships which we have, up to the present, been able to visit and inspect. We are dealing with the various properties more or less in order of their importance or their necessities, the denser populations coming first under consideration; later on the rural portions will receive attention."

"TARVIN RURAL DISTRICT.—The following table shews the work done:—

Number of new houses built during 1912 (2 not completed) ...	...	...	...	17
Number of dwelling-houses inspected under Section 17 of Act of 1909 ..	...	...	...	222
Number of such houses considered unfit for habitation				10
Number of representations made to Local Authority ...				12
Number of Closing Orders made by Local Authority ...				1
Number of houses where defects remedied <i>without</i> Closing Orders being made	22
Number of houses where defects remedied <i>after</i> Closing Orders made	1

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Estimated or ascertained number of houses within limits of rent in Section 14 of Act of 1909	...	1750
Number of such houses in respect of which notice was served during 1912	...	81
Number of such houses closed after notice	...	3
Number of such houses where Local Authority has executed necessary repairs, &c.	...	0
Approximate number of back-to-back houses in district		0
Approximate number of cellar dwellings in district	...	0

Classification of defects found in Inspection under Housing and Town Planning Act, 1909 :—

NORTHERN DIVISION.	Defects.	Remedied.		In hand.
		Closing Order.	Without.	
Water supply	... 5	... 0	... 0	... 5
Closet accommodation	... 66	... 0	... 0	... 66
Drainage	... 62	... 0	... 0	... 62
Condition as to light, free circulation of air, dampness and cleanliness	... 45	... 0	... 10	... 35
Paving of yard and out-houses	... 4	... 0	... 0	... 4
Overcrowding in Huxley, Barrow, Tarvin	...	No record.		

There is not a sufficiency of houses for the working classes in your district.

Classification of defects found in Inspection under Housing and Town Planning Act, 1909 :—

SOUTHERN DIVISION.	Defects.	Remedied		In hand.
		Closing Order.	Without.	
Water supply	... 63	... 0	... 23	... 40
Closet accommodation	... 39	... 0	... 29	... 10
Drainage	... 50	... 0	... 24	... 26
Condition as to light, free circulation of air, dampness and cleanliness	... 20	... 0	... 9	... 11
Paving of yard and outhouses	... 10	... 0	... 3	... 7
Arrangement for deposit of refuse, ashes, &c.	... 73	... 0	... 4	... 69
Any defects in other matters which may tend to render house dangerous or injurious to health	... 3	... 0	... 1	... 2
Overcrowding	... 3	... 0	... 1	... 2".

TINTWISTLE RURAL DISTRICT.—“The number of dwelling-houses inspected under and for the purpose of Sect. 17 of the Act of 1909 was 27. No houses were considered unfit for human habitation. No representations were made to the Local Authority to close any dwellings, nor were any Closing Orders made. In eighteen houses defects were remedied without Closing Orders being made. The remaining houses were only inspected in December, so the owner has not had time to attend to same. The chief defects were—slop-stone pipe leading direct into a drain—no trap on it—no gully trap on which to spit—windows which would not open—defective roofs—flagging bad, etc. There are only two back-to-back houses in the district and no cellar dwellings. Two houses have been closed by the owners, as they would not spend the money on them to make them habitable. No new houses have been erected during the year. The houses, taking them on the whole, are kept clean and tidy—there seems a sufficient number for the inhabitants, but, as I said last year, a scarcity of houses with three bedrooms. Before a new house is occupied it must be inspected by the Surveyor and certified fit for habitation.”

WIRRAL RURAL DISTRICT.—“There are no unoccupied cottages in the area, but the housing problem is by no means so acute as in many Rural Districts. Nevertheless, there are a few cottages which ought to be demolished, but this work cannot be accomplished at present without the risk of driving the occupants into the towns or the workhouse. It appears probable that in the course of the next year or two voluntary work will produce the same condition as is aimed at by the compulsory clauses of the Housing Acts, for instance, the owner of three tumbledown cottages in Brimstage has demolished one and built two airy modern cottages for labourers. Furthermore, he has four cottages partially erected in the same village, and three more are to be put up at once, so that nine modern, spacious, and well-built dwellings will replace three old and dilapidated ones. In Raby village the housing of labourers is being dealt with by the same owner by the erection of four new cottages at once and in Thornton Hough he is replacing two old cottages by two new ones. The Council have debated the expediency of building cottages, but concluded that the matter should be left to private enterprise.

“There have been no cases of overcrowding; the average number of persons per house, which was 5.53 at the 1901 Census, was only 4.8 at the present one. In the ten years elapsing between the two official numberings the number of inhabited houses has risen from 2,533 to 3,836. The supervision over the erection of new houses is in the hands of your Surveyor, who

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examines the plans of all new buildings and also inspects them to see that they comply with your Bye-laws. It is estimated that there are 3,990 houses in the district.

"The Council are to be congratulated upon their enterprise in formulating schemes for town planning their district. There can be no question but that within a very few years a large proportion of the land will be laid out for building purposes and the Council are determined to secure the benefits which will accrue from 'proper sanitary conditions, amenity and convenience,' such as can be obtained under the Act. I am indebted to the Assistant Clerk for the following data in connection with the applications:—

*Applications to Local Government Board for authority to prepare
Town Planning Schemes.*

Scheme 1.

		Area.	Population 1911.	Rateable Value.
Great Sutton	...	1151	414	£3793
Little Sutton	...	1130	1327	10346
Childer Thornton	...	746	688	7842
Hooton	...	1194	226	5354
Eastham	...	1608	1084	12384
		<hr/>	<hr/>	<hr/>
		5829	3739	£39719

Scheme 2.

Heswall-cum-Oldfield	...	1330	3616	£17836
Barnston	...	1108	641	4078
Gayton	...	707	238	2898
Pensby	...	354	74	784
		<hr/>	<hr/>	<hr/>
		3499	4569	£25596

Scheme 3.

Bidston-cum-Ford	...	1713	969	£15543
Moreton	...	1202	970	7892
Noctorum	...	330	203	3763
Upton	...	943	1006	6692
Woodchurch	...	338	138	950
		<hr/>	<hr/>	<hr/>
		4526	3286	£34840

Scheme 4.

Prenton	...	640	1303	£14829
Storeton	...	1372	280	2448
Landican	...	626	80	854
Thingwall	...	377	200	1186
		<hr/>	<hr/>	<hr/>
		3015	1863	£19317

Section XII.—Miscellaneous.

Dairies, Cowsheds and Milkshops.

Whilst there is much to overcome in the shape of tradition and deep-rooted prejudice when striving after improvement of these premises there is no doubt whatever that of recent years the amount of public attention which has been directed to a pure milk supply has borne good fruit. The farmer in my experience is not a man to remain obstinate if good reasons are given to him for proposed changes and amendments. And he is also very thorough in carrying out improvements when he has seen their justice and benefits. The country is ripe for the Milk and Dairies Bill and farmers will, I am convinced, in this dairy County accept it and work it loyally and well as being framed with a view to their ultimate advantage. There are no shirkers of fair burdens amongst the farming community that I know and I think I can claim a fairly intimate knowledge of them.

The value of plenty of air-space, good means of lighting and ample ventilation is thoroughly appreciated by the large majority of farmers and if one wants a lesson in thorough and vigorous cleansing one has but to watch a Cheshire dairy-girl at work on the scouring of a milk-churn. This is not fulsome flattery but an honest opinion based on what I have myself seen on scores of occasions.

The average milk-seller has, however, a good deal yet to learn and until stringent and detailed regulations are made and enforced much of the milk sold will be liable to contamination after it has left the farm.

The Reports indicate that increasing attention is being given to these matters by Sanitary Authorities and their officials as may be seen from the several extracts I publish from the Reports of the Medical Officers of Health.

CREWE MUNICIPAL BOROUGH.—“The greatest cause for complaint at these inspections has been the failure of the farmer or cowkeeper to carry out the necessary daily cleansing without unnecessary delay. Especially in winter when the animals are continuously indoors, the shippon ought to be cleaned out early in the morning and all manure removed.

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Much unnecessary contamination of the animals' flanks and udders would be prevented in this way and the general cleanliness of the cattle raised to a higher standard. Further, this prevention would lessen the work required in the suitable grooming of the cows and the systematic washing of the udders before milking.

"Many of the retail milk shops are quite unsuited for the sale of milk, as they lack proper storing room. They are usually small premises where greengrocery, &c., is sold and the milk is, in most cases, kept in an earthenware or tin vessel on the counter or adjoining shelf. The combination of milk selling with other business in a small shop is not desirable in the health interests of the public.

"The following additional regulation prescribing precautions to be taken by purveyors of milk and persons selling milk by retail in the Borough, against infection or contamination, came into force on August 1st, 1906:—

"Every purveyor of milk or person selling milk by retail shall cause every vessel containing milk for sale to be kept properly covered, or to be otherwise sufficiently protected from contamination by dust or flies."

"It is to be feared many others do not use the covers as they should do."

DUKINFIELD MUNICIPAL BOROUGH.—"Regulations for the carrying out of the Dairies, Cowsheds and Milkshops Order of 1885 were adopted by your Authority in 1887. In 1904 further regulations were adopted by your Council on the basis of the model Bye-laws of the Local Government Board. In some cases there is not sufficient air-space and the lighting and ventilation of these buildings could be improved.

"I have made 125 visits to these cowsheds, &c. and I find in every case the dairies and utensils are kept scrupulously clean. The cowsheds, as a whole, are in good condition and highly creditable so far as cleanliness and tidiness and there is a general desire on the part of the local farmers to comply with the requirements. One new cowshed has been built by the Estate for Mr. Isaac Ashton, Fir Tree Farm. The building is in accordance with the requirements of the Board of Agriculture. As regards the milkshops every care will be taken in the future to see that all the requirements of the Regulations recently come into force are carried out.

DAIRIES, COWSHEDS AND MILKSHOPS.

"The total number of farms in the district is 17.

No. of Dairies	... 17	No. of Inspections during 1912	... 60
„ Cowsheds...	35	„ „ „	...125
„ Milkshops	13	„ „ „	... 35

"The total number of cattle for dairy purposes on November 8th, 1912, was 315."

STALYBRIDGE MUNICIPAL BOROUGH.—"The farms within the Borough number 30 and these include 59 separate cowsheds and 28 dairies.

These premises have been inspected as in previous years and are, generally speaking, kept in a cleanly condition, better attention being given to the removal of the manure than in former years. Improvements have been made at several of the farmsteads as follows:—

Hill Top Farm.—This farm, in the occupation of Mr. B. Kenworthy, who has added the small farm above, known as Hyde Green Farm, has during the year undergone considerable alterations. The addition necessitated larger shippson accommodation, which was done by reconstructing the barn adjoining the old shippson and making it into an up-to-date place to hold eleven cows, careful attention during the course of building being given to the lighting, ventilation and floor surface. The old shippson has had new windows made to open for ventilating purposes put in. The house has been altered and made to include dairy accommodation. The drains and closet accommodation have also been rearranged and made satisfactory, the former being connected to a properly constructed tank, the contents of which may be used on the land.

"Shaw Moor Farm.—At this farmstead considerable work has been done in the shape of dispensing entirely with one very insanitary shippson and replacing by a larger one constructed in the place originally used as a barn. In this case also the new shippson is a thoroughly well-built building and meets the requirements, housing eight cows. An old cottage, which had previously been converted by the tenant into a very unsatisfactory shippson, has been gutted internally and now made into a satisfactory shippson, where five cows can be tied up. Attention has been given to the drainage and the closet accommodation. The water supply might, with great advantage to the tenant, be piped into the kitchen. Close by is

DAIRIES, COWSHEDS AND MILKSHOPS.

another shippon used by Mr. Winterbottom; this has also come in for alterations in the shape of new floor surface and new windows. One word might be added to these and that is, the surface of the walls of the shippons have been left rough. A covering of cement would have improved the walls considerably.

"Stayley Hall Farm.—A new farmhouse, with a large, airy and otherwise well-constructed dairy, has been built during the year.

"Alterations of a minor type have been carried out at Stock's Farm, where the unsatisfactory condition of the shippon has been improved by the addition of ventilators, new windows and new concrete floor surface. At Ridge Hill Farm a very dark and ill-ventilated shippon has been made light by addition of a large window, which is made to open for ventilating purposes. Notices have been served during the year for the following defects found at several of the farms: five cases of unsatisfactory water supply—one of these being in respect to a case of lead poisoning; dirty condition of the shippon in one case; insanitary closets, cesspool and drainage in six instances; in two instances foul water running into cellar and in one instance no proper accommodation for the manure. Though all these have not been complied with, there is every reason to believe that the work and other necessary alterations will have attention in the near future."

WALLASEY MUNICIPAL BOROUGH.—"Samples of milk have been frequently taken for bacteriological examination. None of these were found to be tubercular. Where, however, an excessive number of micro-organisms were found, special inspections of the milk-dealer's premises were made and requests made to the County Medical Officer of Health for a similar inspection at the sources of the milk supply, with the object of discovering how the milk probably became contaminated in each instance, so that steps might be taken to prevent such contamination in the future."

BOWDON URBAN DISTRICT.—"The milk supply, the cowsheds, dairies and milkshops have been inspected by me and found in a good sanitary condition, with a few small exceptions, which are left in the hands of the Sanitary Inspector to deal with. In my opinion it would be better if the inspection of these were in the hands of the County Authorities, because we have dairies in our district which supply milk to the surrounding districts and in case of epidemics arising from


DAIRIES, COWSHEDS AND MILKSHOPS.

impure milk it is difficult to trace the source of infection to the fountain head, especially if the milk seller have milk from several sources which may be in several different districts."

BREDBURY AND ROMILEY URBAN DISTRICT.—"The milk supply is abundant and of good quality. It is all produced in the district and most of it is despatched direct from the farms to the consumer without any intermediate storing or delay. In one case during the early part of the year the Manchester Sanitary Authorities sent us word that milk sent from a particular farm in this district had been found to be contaminated by tubercle bacilli. Immediate steps were taken to recognise the particular cow from which this milk had been obtained and the further supply stopped. The cow was slaughtered and another one, not altogether free from suspicion, was run dry. The general inspection of the dairies and cowsheds in the district have been followed up and notices have been served on four landlords respecting the unsatisfactory condition of their cowsheds and other matters connected with the sanitary condition thereof."

BUGLAWTON URBAN DISTRICT.—"Under the Dairies, Cowsheds and Milkshops Order, 70 inspections were made and ten were found to be defective in various ways, such as defective or no drainage, drain in cowshed, defective light or ventilation and defective floors. In three cowsheds and one dairy the defects were remedied and are in course of being so in three others."

CHEADLE AND GATLEY URBAN DISTRICT.—"There are 42 dairies, to which are attached 79 cowsheds and two milkshops in the district. They have all been regularly visited by your Inspector and I have made several inspections. They are on the whole clean and the animals well cared for. Four cowsheds have been repaired during the year but no new ones built. In 1903 your Inspector drew up a very full report on the lighting, ventilation and the cubic space per cow on all the cowsheds in the district. In December, 1907, he was instructed to draw up another report on the same subject and also again in 1909. From the subjoined table it will be seen what a great improvement has taken place in the amount of cubic space allowed per cow. Now in the majority of cases there is over 600 cubic feet of space per cow.



DAIRIES, COWSHEDS AND MILKSHOPS.

COWSHEDS IN THE DISTRICT AND THE CUBIC SPACE PER COW AS SHEWN BY SPECIAL REPORT MADE IN 1904 AND 1909.

1904.				1909.			
<i>Under</i> 400	400-500	500-600	<i>Over</i> 600	<i>Under</i> 400	400-500	500-600	<i>Over</i> 600
12	14	13	35	3	14	32	40

AT CLOSE OF YEAR 1910.

<i>Under</i> 400	400-500	500-600	<i>Over</i> 600
—	14	24	41

ELLESMERE PORT AND WHITBY URBAN DISTRICT.—“The milk supply is mostly from cows within your own district, or from the immediately adjoining portion of the Wirral Rural District. My visits of inspection convinced me that many of the cowsheds are not up to the standard of modern requirements in structure, lighting and ventilation. Lime-washing, as a rule, is done with regularity; but as the cowsheds are in the possession of tenants, they do not see their way to undertake alteration in their landlords' property. In some instances the shippens are mere wooden sheds which, although erected for temporary purposes, have been allowed to persist. It has to be remembered that for the greater part of the year the shippens are empty and it can be said for the rickety wooden buildings that they are well ventilated. There are 38 dairies, cowsheds and milkshops. One new milkshop was registered during the year. No action has been taken to determine whether any tuberculous milk is sold in the town.”

SOUTH-WEST CHESHIRE COMBINED DISTRICTS.—“Several milch cows were discovered in the district suffering from tubercular disease of the udder; these were, as soon as possible, removed from their respective herds and slaughtered and advice given to the owners with regard to light and ventilation where this was found at fault. The bacillus tuberculosis found in milk indicates that the animals from which the milk was taken were tubercular, or that the pails into which the milk was received, or the milkers' hands were infected from previous contact with a diseased cow or person; this, as one

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can readily see, may infect the teats of the other healthy animals. Milk producers have already shown a willingness to be advised as to the best methods of keeping their cattle and cowsheds in the most healthy and sanitary conditions."

WINSFORD URBAN DISTRICT.—"Systematic inspection has been maintained over cowsheds and frequent surprise visits paid. There are 89 cowsheds and 186 inspections were made. The usual limewashing notices were issued. Three old cowsheds have been re-constructed and by securing amendments in the plans submitted before advising the Council to pass them, the new cowsheds, now completed, are well up-to-date in all details. It is out of my power to certify the wholesomeness of the milk, as there is no local action under the Food and Drugs Act and milk is not sent from this district to Manchester, which, in some other districts is a source of information about tuberculous milk, as to which (as it is) I have no knowledge at all."

BUCKLOW RURAL DISTRICT.—"Inspections of dairies and cowsheds have been carried out in the usual systematic fashion. I have accompanied Mr. Metcalfe to every township at least twice during the year. The majority of the sheds are now fairly satisfactory in structure; more attention has been given therefore to improving the standard of general cleanliness of both premises and cattle. Notices, formal or informal, have been served as required. One new cowshed was built during the year and several old ones improved. Tuberculous milk was only discovered (by examination in Manchester) twice. The cows and farms implicated were in Peover Inferior and Aston-by-Budworth. The animals were slaughtered under the supervision of the Manchester Inspector."

MACCLESFIELD RURAL DISTRICT.—"During the year 13 cases of tuberculosis of the udder in cows were discovered in your district by the Manchester Health Authorities, acting under the powers granted to them by the Milk Clauses of the Manchester Corporation (General Powers) Acts, 1899 and 1904. In all these cases the cow was destroyed and where the carcase fulfilled the conditions laid down by the Local Government Board, permission was given for its sale for human consumption. The Medical Officer of Health for the County also visited each of the farms where a cow with tuberculosis of the udder had been discovered and on his suggestions structural or other alterations of the cowsheds have been carried out.

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“In a district such as yours where the production of cows’ milk forms the staple industry, the subject of tuberculosis among cattle is a matter of vital importance and, as it has been clearly established that tuberculosis in human beings—especially among children, who are the largest consumers of milk in the uncooked state—is frequently transmitted through the medium of infected cows’ milk, the eradication of bovine tuberculosis must be constantly kept in view as a preliminary step in the control of the disease in man. Tuberculosis in the cow is largely dependent upon known and removable conditions, various factors being concerned in its production. Those which immediately concern us are the want of an open-air life—the housing of the animals in sheds badly constructed, badly kept, ill-ventilated and with insufficient lighting, all of which have important bearings upon the production and dissemination of tuberculosis among cattle. Another point also to be noted from a practical point of view is the comparative frequency with which tuberculosis of the udder is seen among cows over four or five years of age. A more frequent renewal of stock on the part of the owners would therefore eliminate this source of danger. I have thus briefly indicated the objects which have been kept in view in making inspections of cowsheds, 225 of which were made during the year and 18 notices served for the remedy of various defects observed at the time of inspection.”

NORTHWICH RURAL DISTRICT.—“Great strides have been made in this department during the year; many shippens have been reconstructed and numerous improvements effected without action being taken by the Council. The owners of the larger estates in the district appear to fully appreciate their responsibility and are undertaking the necessary alterations to the cowsheds when practicable. The inspections made clearly show that the owners and tenants are fully alive to the requirements of the Council’s Regulations and the necessity for complaint to the Council has not arisen during the year. Preliminary notices issued to the 406 registered farms as to lime-washing during the months of May and October have been responded to by the farmers in a manner which reflects great credit upon them. Only two complaints have been received from other authorities as to the presence of tuberculosis in the supplies from the district. In one case the complaint was from the Manchester Authority and after the inspection of the stock by their Veterinary Inspector a cow was notified as suffering from a tubercular udder. The farmer at once had the beast slaughtered under the supervision of the same Inspector resulting in the forequarters being condemned and destroyed. The other case was a complaint from an authority

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not having powers of inspection outside their own district, that the supply from a farm in this district had been found to contain the tubercle bacilli. The farm was at once visited and on the instruction of the Medical Officer of Health a veterinary surgeon was engaged and the whole stock of 40 cows examined resulting in three being marked as suspicious. Samples of milk were at once taken from each of these and from the bulk of the milk exclusive of that from the suspected cows and submitted for bacteriological examination to Prof. Delépine, resulting in one of the suspects being confirmed, the other three samples being certified clear. The farmer had the affected beast slaughtered as soon as possible and it was found to be suffering from acute miliary tuberculosis. The forequarters were condemned and destroyed.

“The prompt action taken by the farmer after the circumstances were brought to his notice, by isolating the suspected cows and slaughtering the affected beast, resulted in the whole of his stock being certified clear. On this case being reported to the Council the action in calling in a veterinary surgeon to examine the stock and carcase was confirmed and authority given to the Medical Officer of Health and in his absence to the Inspector, to call in veterinary advice on similar cases being reported to them.”

RUNCORN RURAL DISTRICT.—“In practically all cases, the milk is dealt with entirely outside the dwelling-houses and, as far as practicable, by persons who do not reside on the premises; but should any infectious disease occur on the premises the further sale of milk is—(1) either prohibited altogether during the continuance of the disease on the premises, or (2) is dealt with in accordance with the local regulations adopted by your Council, under the Dairies, Cowsheds and Milkshops Orders 1885 and of 1899. These regulations are strictly enforced within your district in the event of the occurrence of infectious diseases.”

WIRRAL RURAL DISTRICT.—“There are 267 licensed cowsheds and milk sellers in your district. Not only are the neighbouring Urban Districts supplied, but also the towns of Birkenhead, Wallasey and Liverpool. The cowsheds are regularly inspected and frequent lime washings insisted upon wherever they are required. The shippens vary from the model dwellings of wealthy persons who make farming a hobby, down to primitive sheds where both ventilation and lighting are deficient. During the last ten years there has been a considerable advance in the provision of light and air for the animals, as there is a general

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recognition of the fact that cows are more profitable when well housed. The arguments used against further improvement in this direction are generally (1) that it is the occupier who is called upon to do the improvement and not the owner, which is unfair; (2) that better housing is not required as the cows are in the open air most of the time. At some of the farms the milking arrangements are of a model kind. No inspector with veterinary knowledge has been appointed to examine the cows."

Slaughter-houses.

I think it may safely be asserted that these premises are satisfactorily kept under supervision. It is, of course, not a very easy matter in a large rural district to ensure this, but in urban areas there should be no difficulty. The matter is very well managed in Congleton Borough, under the supervision of a Veterinary Inspector, who has had special training and experience in meat inspection. His remarks are on this account of special interest.

I reproduce a few extracts from Medical Officer's Reports on this matter.

CONGLETON URBAN DISTRICT.—"The Veterinary Inspector reports:—That there are 13 private slaughter-houses, of which 10 are in constant use and that 12 rounds of inspection were made and that, generally speaking, they were found to be kept in a clean condition, most of the owners having paid better attention to whitewashing and removal of garbage than formerly; that, in addition to the visits made at his own instance, requests were received on five occasions for special visits in respect of doubtful carcasses and four of these were wholly condemned as unfit for human consumption; two on account of tuberculosis, one owing to emaciation and one to inflammation. On one occasion he was called by the Sanitary Inspector to examine a newly-slaughtered cow and found it prepared in the usual way as if for sale and in an advanced stage of tubercular disease; that the carcase and offal were seized and condemned by a Magistrate, but the Town Council decided not to prosecute; that, on another occasion, he accompanied the Medical Officer of Health and Sanitary Inspector to a tripe-dressing place, to examine two stomachs of cattle which the Sanitary Inspector had discovered earlier in the day and found them extensively affected with tubercle and they were condemned by a Magistrate, but no prosecution followed; that the frozen meat shops had been frequently visited without anything unusual being discovered, the supplies seeming to have

been carefully regulated and the meat sold quickly ; that the amount of slaughtering in the year was approximately as follows :—cattle 900, sheep and lambs 3900, pigs 2350 and that the quality was of high class in most instances and that he also frequently visited the fish stalls in the Market Place on Saturday night, but did not find anything of an unusual character.

“ In view of the difficulty of detecting the possession or sale of unsound meat, because of the slaughtering being done at irregular times and in a number of private slaughter-houses and that the Veterinary and Sanitary Inspectors, both men of experience in such matters, were absolutely certain, not only of the existence of extensive disease in the cow referred to in the report of the former, but that the carcass was prepared for food and on those grounds condemned by a Magistrate, it seems unfortunate, to say the least of it, that you should have thought right to decline to prosecute, seeing had a prosecution taken place and failed the expense would have been a trifling matter, compared with the advantage to be gained by the exposure and punishment of the offender in the event of a conviction, especially in this case, where it was well known that the animal was purchased for a trifle, or got for nothing, knowing she was diseased and brought to the slaughter-house, where a diseased animal ought never to be knowingly brought. In the case of the tripe dealer, he voluntarily admitted the stomachs were intended for food and would have been sold as such in a short time had they not been seized, his excuse being that he was ignorant of the appearances of tubercle and that he had been supplied by a wholesale dealer. So far as can be ascertained, the grounds upon which you decided not to prosecute in the cow case, were that you did not think there was sufficient evidence to prove exposure of, or preparation for, sale within the meaning of the Public Health Act and with regard to the other, that the man, in whose possession the stomachs were found, was ignorant of their being diseased, or of his having committed an offence and there were legal or some kind of difficulties in the way of getting at the alleged wholesale dealer.”

ALSAGER URBAN DISTRICT.—“ There are three slaughter-houses. These have been inspected regularly and are kept in as sanitary a condition as can be expected from such premises. There is room for much improvement in them. They require constant supervision, especially in hot weather and cannot be described as satisfactory.”

HIGHER BEBINGTON URBAN DISTRICT.—“ There are two private slaughter-houses in the village, both of which are subject to annual renewal of licence. In connection with one of these,

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complaint of the prevalence of conditions of a very objectionable character led to a controversy as to the re-licensing of the premises. In the end structural alterations as detailed under the Model Byelaws were carried out and the buildings were licensed for a year."

Refuse Removal and Disposal.

The Reports for 1912 deal with this question rather more fully than in previous years. *Further reference to this matter is made in Section X. (pages 209 to 217).* The Municipal Boroughs of Crewe, Dukinfield, Hyde and Macclesfield should before long, in my opinion, consider seriously the question of abolishing the use of 'tips' for house refuse and the erection of refuse destructors.

The Reports generally shew that the abolition of the privy-midden and similar types of conservancy methods, is proceeding at a fair rate, but in many urban districts there is no doubt that wholesale abolition should be commenced and the water-carriage system made universal.

CREWE MUNICIPAL BOROUGH.—"The scavenging required to deal with the house refuse, trade refuse, the waste paper and the nightsoil is carried out under the superintendence of your Chief Sanitary Inspector.

"Since the initiation of the collection of waste paper in 1903, from bags supplied by the Health Committee, this work has steadily increased and a re-adjustment in the organization has been called for to cope with it. As is shown by the table, in 1903 the quantity of paper equalled the capacity of 11,160 bags, in 1912 it had increased to the capacity of 28,398 bags. The refuse is disposed of on tips at the Corporation Farm and elsewhere. The Committee have been considering the question of a refuse destructor and a special report is being prepared to deal with that matter. The need for a destructor becomes greater as time elapses."

DUKINFIELD MUNICIPAL BOROUGH.—"House refuse is removed during the daytime. Privies, pail closets, &c., are emptied during the nighttime, between 11 o'clock and 6 o'clock.

"Covered carts are used for the collection of dry household refuse and the refuse is disposed of at the Corporation tip at Bradley Hurst, or at a private tip rented from the Estate Authority on Birch Lane. The collection of refuse from premises (houses)

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where the closet accommodation is of the privy-midden type, is carried out during the nighttime from 11 to 6 o'clock and conveyed by the Corporation carts to Bradley Hurst tip."

STALYBRIDGE MUNICIPAL BOROUGH.—"The greater portion of the town is now on the water-carriage system, for rapid strides continue to be made in the conversion of privies into either waste water or town's water closets, with receptacles for house refuse, and these conversions are mostly taking place among the worst types of privy ashpits. Since October 1st, 1907, the Sanitary Department has had entire control over the removal and disposal of all midden and house refuse in the borough, which, with the exception of that from the Carrbrook and Hey Heads districts, is now conveyed to the town's destructor at the 'Flatts.'

"The refuse destructor, erected by Heenan and Froude, of Manchester, is a five-cell furnace of the 'Heenan' Patent Top Feed type, and is furnished with all the latest improvements. The plant is shut down about every six weeks for a few days to allow of the cleaning of the combustion chamber, the flues, the superheater, &c. The clinker from the furnaces is of excellent quality and a great quantity of it has been utilised for the percolating beds at the sewage works at Bradley Hurst.

"With respect to house refuse removal, it may be said that as the water-carriage system is gradually being adopted, there is a greater quantity of dry refuse to be collected and lesser quantity of midden refuse to be dealt with. This order of things is bringing about a change in the working, with the result that shortly there will be more horses and carts working in the daytime than at night.

"The system now in vogue, including the dividing up of the borough into districts for the collection and removal of the refuse, is working satisfactorily. At the time of writing this department has settled down to the new order of things. The strike in January last, which disorganised the town for several days, was settled, the men being advanced one shilling all round and payment allowed for Good Friday and Christmas Day. It is essential that in the future efforts should be made to instal the regulation size of ashbin for dry refuse. At the present time there are open ashpits, covered-in ashpits, ashtubs without covers, ashbins with covers, and ashbins enclosed in covered places for storage of household refuse. When conversions are about to take place, and the plans are being prepared, suggestions are made to the persons concerned to supply their houses with covered ashbins, if possible

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one to each house. These suggestions are nearly always acceded to, with the result that gives a minimum amount of work with a maximum of sanitation. It has been clearly shown that the ashbin system is the most economical system of dealing with household refuse, as the refuse can be more easily and expeditiously dealt with, without the use of barrows and other implements necessary when ashpits have to be emptied."

WALLASEY MUNICIPAL BOROUGH.—"There remain at present 769 single ashpits and 1,200 double ashpits. These are emptied on an average every five weeks by the employees of the Council. Their number is being steadily reduced. 1,260 ashpits have been abolished during the past four years and bins substituted. Bins are now required in all new property. These are emptied once a week and the total number of bins is now 16,352."

ALTRINCHAM URBAN DISTRICT.—"The Council have purchased, during the year, a site for a refuse destructor."

HIGHER BEBINGTON URBAN DISTRICT.—"Seavenging is performed by contract. The house refuse and contents of the midden privies are removed by the contractor at short intervals. There are still a large number of ashpits, but dustbins have been substituted for about one-third of the refuse receptacles."

LOWER BEBINGTON URBAN DISTRICT. — "Scavenging is efficiently done by the Council through the medium of its own staff of men and apparatus. The difficulty of obtaining tips on agricultural land on which refuse could be placed, without creating a nuisance, has led to the decision of the Council to provide a refuse destructor. The sanction of the Local Government Board to this method of refuse disposal having been obtained, the Council advertised for tenders and is now prepared to proceed with the necessary work. The old-fashioned fixed receptacles for refuse are still in use in connection with a large number of houses, but the officials engaged in sanitary work never lose an opportunity of impressing upon persons concerned the advisability of substituting a movable ashbin with proper covering and abolishing the fixed receptacles."

BROMBOROUGH URBAN DISTRICT.—"Dustbins are emptied once a week and ashpits and privies once a month. The Council employ their own men for this work. Six houses drain to cess-pools which are emptied by the owners when required."

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ELLESMERE PORT AND WHITBY URBAN DISTRICT.—“Scavenging is carried out by a contractor, who undertakes to empty ashpits and dust-bins in covered carts in a systematic way. When work of this description is let by tender it is almost always found that house refuse is allowed to collect for a longer period than is judicious in relation to the health of the householders. All sanitarians agree that large collections of house refuse in the neighbourhood of dwellings are detrimental to health and I would ask your Council to consider, at the termination of the present contract, the advisability of employing their own workmen and carts to keep the refuse receptacles in an empty state. The latter plan has now been adopted by most of the districts in North-West Cheshire and has been found to work advantageously. The disposal of refuse is by tips on agricultural land and as is to be anticipated in a growing industrial district complaint of nuisance arises from time to time. Every care is taken to try and prevent the occurrence of cause for complaint; the contractor is required to cover with soil all refuse at the place where it is deposited. As time goes on and as the district expands, increasing difficulty will be found in obtaining sites for the deposit of refuse. The tar macadamised streets are well scavenged and it is found that they are readily kept clean although subjected to a very large amount of traffic.”

HALE URBAN DISTRICT.—“The method of scavenging in vogue aims at the removal of refuse without soil pollution, as follows :—A low built lorry laden with air-tight bins is drawn to the various parts of the district. To the rear of the lorry a rubber-tyred trolley is attached. Having arrived at the destination, a bin is placed on the trolley and this is drawn and placed against or near the receptacle to be emptied and the contents of the latter are emptied direct into the bin. When full, the bins are taken to a tip and emptied there. This method is employed in all privies, pail closets and ashpits and has proved very satisfactory indeed and economical. Owners and occupiers are being encouraged to replace ashpits by bins and during the year 147 privy ashpits and 29 dry ashpits have been abolished and bins substituted. Ashbins are emptied direct into a covered cart. The air-tight bins used for the removal of refuse are from time to time washed out with disinfecting solution and at other times are dusted with carbolic acid powder, each being done according to requirements. Privy ashpits are emptied every four weeks, dry ashpits every second month and bins fortnightly, or more often if required. Any request or complaint is at once attended to.

“The closet accommodation existing in the district is shown by the following details :—

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Double privy ashpits	...	115	} = 264 houses.
Single " "	...	34	
Houses with water closets and privy ashpits	...	81	
Total number of privy ashpits	...	219	
Privy pails	...	25	
Water closets	...	1795	
Multiple dry ashpits	...	7	} = 517 houses.
Double " "	...	134	
Single " "	...	256	
Ashbins	...	1219	

HAZEL GROVE AND BRAMHALL URBAN DISTRICT.—“Scavenging is carried out by the Council.

TYPE.	NO.	HOW FREQUENTLY SCAVENGED?
Midden-privies	... 1294	As often as may be required.
Dry ashpits	... 856	„
Pail-closets	... 6	„
Dustbins	... 150	„
Cesspools	... 20	„

HOLLINGWORTH URBAN DISTRICT.—“The scavenging of all premises has hitherto been carried out by private owners. In the last report it was stated that the Council was about to undertake the removal of house refuse and the cleansing of earth closets, privies, ashpits and cesspools. I am glad to say that this is now a settled fact and a great many of such are now being cleansed by the Council and the number is increasing. A few of the newer houses are provided with water closets and in some cases old houses are now being adapted for that convenience. The old property is in most cases served with midden privies, which are being gradually abolished. Dry ashpits, pail closets and dustbins are also found. The approximate numbers are :—

Midden-privies	...	224
Dry ashpits	...	170
Pail closets	...	104
Dustbins	...	34
Cesspools	...	3
Waste-water closets	...	54
Town's water closets	...	44 ”

REFUSE REMOVAL AND DISPOSAL.

HOYLAKE AND WEST KIRBY URBAN DISTRICT.—“Scavenging is carried out by a staff of men in the employment of the Council and is adequately performed. Fifteen tons of refuse are removed daily. The horses and carts utilised are the property of the Council, but it has now been determined to replace them by a motor scavenging waggon and arrangements have been made for its early delivery. The petrol waggon which has been selected has a carrying capacity of three tons and the type adopted is one which will comply with the War Office Subsidy Scheme. The tender accepted in this connection was for £756 and before its acceptance the engineer reported on the relative cost and merits of steam and petrol waggons. Ashpits are emptied about every two weeks and dustbins weekly. Trade refuse is removed twice weekly. The substitution of movable ashbins with proper coverings is gradually diminishing the number of fixed receptacles for refuse. 152 new dustbins were provided during 1912. Refuse is disposed of at a tip on agricultural land and by frequent inspection and treatment it is attempted to obviate any nuisance or complaint which might arise therefrom.”

KNUTSFORD URBAN DISTRICT.—“Thirty-eight ashpits have been abolished and 66 galvanized iron-covered bins provided. 2,566 ashpits (including privies) have been cleansed and 8,060 pails. 34,164 ashbins have been emptied and 2,816 cart-loads of ashes removed to the tip. All ashbins and pails are attended to weekly, ashpits and privies as occasion requires, but never left long. The work is done by the Council's staff and in 1912 the cost was £479 9s. 4d.”

MIDDLEWICH URBAN DISTRICT.—“The district is mainly supplied with ashpits, privies and pails. Wherever new property is erected pails are recommended and also we advise the present privies to be converted into pail closets. There are a few water closets, some of which empty into the sewers, others into cess-pools. The pails are emptied every week. The work is done by contract and on the whole satisfactorily carried out.”

NESTON AND PARKGATE URBAN DISTRICT.—“2,831 tons of refuse were collected and disposed of by tipping on agricultural land. This represents something like three tons of material from each house. The cost of collecting and disposing of this, which is borne by the district, is another argument for insistence on the water carriage system for, if this were introduced, there would be a very considerable diminution in the refuse to be collected. The commendable practice of using galvanized iron dustbins is

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on the increase, but many persons have still to learn that these receptacles are for ashes only and that all rubbish which is combustible should be burned. The experiment inaugurated three years ago of having the privies and dustbins emptied by your own workmen and the provision of your own horses and carts, instead of letting the work by contract to the lowest tender, has been a great success. You have now acquired stables and other buildings on your own land. In July, August and September you anticipated the outbreak of infantile diarrhœa and employed extra men to keep the middens empty. This involved extra cost, but was amply repaid by the almost total absence of cases from the district. Every sanitarian is convinced that accumulations of garbage, human excreta and rubbish in the neighbourhood of houses is detrimental to the health of the community and I would ask your Council to take every opportunity to insist on the removal of these collections of putrescent material. The number of times ashpits and bins were emptied amounted to 12,241."

SANDBACH URBAN DISTRICT.—"House refuse is removed by the Council's employees. A good number of ashbins have been provided by property owners at the request of the Nuisance Inspector during the year and the number of ashbins in the district, which are emptied weekly, are now 179. Closets are also cleansed by the Council's workmen.

"The work under this heading is carried out systematically in districts and requisition forms are available at the Town Hall for urgent cases. These forms are numbered and, when filled up, are entered on a list each day by the Inspector of Nuisances and the date when they are dealt with is also recorded. During the year the Inspector of Nuisances has secured particulars of the systems of scavenging which obtain in several neighbouring districts and these particulars have been summarised and placed before the Sanitary Committee."

TARPORLEY URBAN DISTRICT.—"Scavenging is not carried out by the Local Authority but by private arrangement, each householder as a rule disposing of his own refuse.

The approximate number of different structures is :—

Midden privies	..	...	Very few
Privies	About 221
Dry ashpits		...	0
Pail closets	47
Dustbins	0
Cesspools	About 200

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"In Tarporley some of the privies are old and inadequate and your Council has decided to have them converted into water-closets as early as possible. In the other townships where there are old and dirty privies, pail closets are to be substituted as most of the cottages have good gardens."

WILMSLOW URBAN DISTRICT.—"The Council has decided to undertake the scavenging of the district and will shortly put the scheme into operation. The dry refuse will be put on farm land to fill up hollows, and the nightsoil on bog and farm land to be used as manure."

MACCLESFIELD RURAL DISTRICT.—"The removal of house refuse and the cleaning of earth-closets, privies, ashpits and cesspools are carried out privately, the work in no case being undertaken by your Council. In several parts of the district, movable ashbins are in use."

NANTWICH RURAL DISTRICT.—"The work of refuse removal is undertaken publicly for the townships of Audlem, Church Coppenhall, Haslington, Shavington, Willaston and part of Wistaston. In these townships the closets and ashpits are emptied, but there is no provision for the emptying of cesspools. Many of the residents have complained to me of their difficulty in getting this done without causing nuisance and inconvenience. I think that some of the more difficult cesspools might be arranged for through the contractors. The collection of house refuse in the villages where the work is done by public contract has had proper attention. Since your Council took over the work of collecting the house refuse in the villages of Willaston and Wistaston, by the employment of direct labour under my supervision, fewer complaints have been received, which proves that the work is being done in a satisfactory manner."

NORTHWICH RURAL DISTRICT.—"Scavenging is carried out in 12 of the townships by contractors. The pail closets, of which there are some 2,500, are cleared weekly; of dustbins there are some 2,650, which are cleared as required by the contractor; and of cesspools, dry ashpits and midden privies there is no record. There does not appear any acute need for greater extensions at present.

The Inspector adds:—"Constant supervision has been reported over the execution of the scavenging contracts in the 12 townships and the Council have resolved on the completion of the present contracts in March, 1913, to so alter the form of contract as will

REFUSE REMOVAL AND DISPOSAL—COMMON LODGING-HOUSES.

arrange for the fortnightly removal of all house refuse from the houses within the scavenging area. The change pail system in operation in ten of the townships has been faithfully attended to weekly by the Council contractors and nine tons of disinfecting powder were used by them in the cleansing of the pails and ash tubs during the year."

RUNCORN RURAL DISTRICT.—"There is no systematic arrangement applicable to the whole district for either house refuse, or for cleansing of closets, ashpits or cesspools. In Stockton Heath this work is carried out by a contractor; in Weston and Weston Point, when the conversion of privies is sufficiently advanced, it is, I understand, intended that the township itself will undertake these duties, or negotiate a contract for them and it may be hoped that Halton will carry out a similar scheme. When closet refuse can be taken away from ashpit refuse, this should be done in all cases. The general arrangements for the rest of the district might, with advantage, be considered and revised by your Council, as I feel convinced that considerable improvement might result from your deliberations."

WIRRAL RURAL DISTRICT.—"In eight of the Townships the removal of house refuse is undertaken by contractors, who are required to remove it at short intervals. Your Council do not empty cesspools, but make the tenants fulfil this duty, with the result that the work is badly done and where the sanitary rate is exacted they feel that they have a grievance. An Inspector of the Local Government Board visited Pasture Road, Moreton, on a complaint relative to want of sanitation, lodged by some of the householders in that road. From his report it will be seen that in the opinion of the Local Government Board 'the Council should undertake the systematic emptying at frequent intervals of the cesspools attached to these houses and at the same time see that the cesspools are maintained in watertight condition so that nuisance by leakage of contents therefrom may be avoided.'

Common Lodging-houses.

There are very few references to these in the Annual Reports received beyond statistics giving the number in the district and the number of inspections made. I quote two extracts and trust that the conditions mentioned in the second one are receiving due attention from the Town Council.

CONGLETON URBAN DISTRICT.—"The Chief Constable, who has charge of these places, reports there are four houses registered

COMMON LODGING-HOUSES—FACTORIES AND WORKSHOPS—
OFFENSIVE TRADES.

in accordance with the Public Health Act, with accommodation for 84 persons nightly ; that they had been regularly visited by the police and, with one exception, the regulations and byelaws were fairly well observed ; that one lodging-house keeper was cautioned for having the rooms in a dirty condition, since when a marked improvement had taken place and that during the year a total of 20,373 persons had been lodged, showing a decrease of 2,420 compared with 1911."

HYDE MUNICIPAL BOROUGH.—"There are three common lodging-houses, which provide accommodation for 88 lodgers. The structural arrangements of these houses are imperfect ; they are difficult to keep clean and are badly ventilated."

Factories and Workshops.

From the Tables appended to the Annual Reports it would appear that this branch of sanitary work continues to receive careful attention. Time has unfortunately not permitted of my summarising all the figures contained in these Tables so that I am only able to make a general statement on the matter. Two Reports contain special reference to these premises and these I quote.

CONGLETON MUNICIPAL BOROUGH.—"82 factories and 85 workshops were inspected and 78 defects were found, 25 of which have been remedied, consisting of defective drainage, no sanitary accommodation, insufficient or unsuitable sanitary accommodation. They were all found to be clean and regularly whitewashed."

WINSFORD URBAN DISTRICT.—"All workshops have been kept under observation and the conditions as to cleanliness, sanitary conveniences and other matters were found generally satisfactory, especially as regards some of the factories. Negotiations are in progress for additional means of escape in case of fire, at two factories, to which attention was drawn by the Factory Inspector. Two lists of outworkers have been supplied by one firm containing 11 names in February and six in August. The houses concerned have been supervised. In two of them cases of infectious disease occurred."

Offensive Trades.

There are only two references worthy of reproduction in the Annual Reports received and these I append. The trade of fish-frying is becoming scheduled by a good many Local Authorities as an offensive trade and in my opinion with excellent reason.

OFFENSIVE TRADES.

CREWE MUNICIPAL BOROUGH.—“Under the Public Health Act, 1875, Section 112, as amended by the Public Health Acts Amendment Act, 1907, Section 51, the Council made an Order on April 5th, 1911, whereby the following trades were declared to be offensive:—Blood-drier, tanner, leather-dresser, fat melter or fat extractor, glue-maker, size-maker, gut-scraper, rag and bone dealer and hide and skin and fat dealer or factor.

“To adequately administer the Order in regard to the rag and bone trade the Council in August, 1912, enacted the following Bye-laws:—

BYE-LAWS made by the Mayor, Aldermen and Burgesses of the Borough of Crewe, acting by the Council with respect to the trade of a RAG and BONE DEALER, in the said Borough.

Interpretation.

1. Throughout these Bye-laws the expression “The Council” means the Mayor, Aldermen and Burgesses of the Borough of Crewe, acting by the Council.

With respect to the trade of a Rag and Bone Dealer.

2. A rag and bone dealer shall not place or store, or cause or suffer to be placed or stored, any rags or bones in any part of the premises where his trade is carried on, which is used or occupied as a living or sleeping room, or in any warehouse, building or room that is not provided with proper and sufficient means of ventilation.

3. Every rag and bone dealer shall cause every part of the internal surface above the floor or pavement of any building in which his trade is carried on to be washed with hot lime-wash twice at least in *every year*, that is to say, at least once during the periods between the *first* and *twenty-first* day of *April*, and the *first* and *twenty-first* day of *October*, and at such other times as may be necessary.

Provided always that this Bye-law shall not apply to any part of the internal surface of any building which is painted or covered with impervious material and may be otherwise properly cleansed.

4. Every rag and bone dealer shall store all bones in suitable metal vessels or receptacles furnished with closely fitting covers or in well tarred bags kept closed, and shall cause the same to be removed from the premises at frequent intervals.

5. Every rag and bone dealer shall cause every part of the internal surface of the walls of any building and every floor or pavement upon the premises where his trade is carried on to be kept at all times in good order, condition and repair, so as to prevent the absorption therein of any liquid filth or refuse or any noxious or injurious matter which may be splashed or may fall or be deposited thereon.

General Provisions.

6. Every rag and bone dealer shall cause every drain or means of drainage upon or in connection with the premises where his trade is carried on to be maintained at all times in good order and efficient action.

OFFENSIVE TRADES--CANAL BOATS.

7. Every rag and bone dealer shall, at all reasonable times afford free access to every part of the premises where his trade is carried on to the Medical Officer of Health, the Inspector of Nuisances, or the Surveyor of the Council, or to any Committee specially appointed by the Council in that behalf, for the purpose of inspecting the premises.

Penalties.

8. Every person who shall offend against any of the foregoing Bye-laws shall be liable for every such offence to a penalty of *five pounds*, and in the case of a continuing offence to a further penalty of *forty shillings* for each day after written notice of the offence from the Council.

Provided nevertheless that the justices or court before whom any complaint may be made or any proceedings may be taken in respect of any such offence may, if they think fit, adjudge the payment as a penalty, of any sum less than the full amount of the penalty imposed by this Bye-law."

HOYLAKES AND WEST KIRBY URBAN DISTRICT.—"The common seal of the Council has been affixed to a Declaratory Order under Section 51 of the Public Health Acts Amendment Act, 1907, declaring the trade of fish frier to be an offensive one and application has been made to the Local Government Board for confirmation of the Order. The trades of chipped potato frier and dealer in second-hand clothing were, on the advice of the Board, not included as offensive trades in the Order."

Canal Boats.

The number of inspecting authorities in Cheshire is not a large one, but the regulations are well administered and are sufficiently detailed to ensure thoroughness in all matters affecting health. Two extracts from Annual Reports are appended.

STALYBRIDGE MUNICIPAL BOROUGH.—"The condition of these appeared to be, on the whole, very satisfactory, with the exception of one or two infringements of the Canal Boats Acts and Regulations. These infringements are five in number, one in as far as the cabin required painting; one where there was no water vessel on board; one where there was no certificate carried on board and two where the certificate did not identify boat on which they were found."

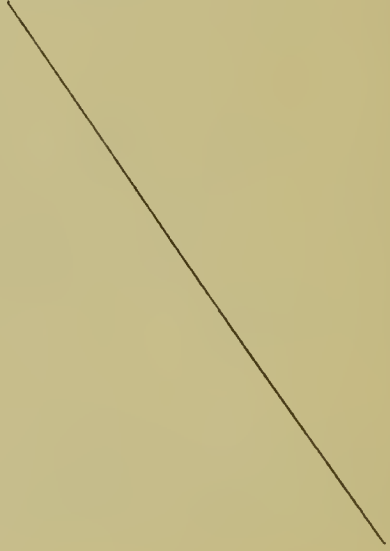
BUCKLOW RURAL DISTRICT.—"During the year 43 visits have been paid to canal boats and 78 inspections made. No formal notices have been served. The boats were registered to carry 285 persons and 160 were found on board, viz.:—120 men, 39 women and one boy of 12. This boy ought to have been attending

CANAL BOATS—SANITARY INSPECTIONS.

school and the facts were communicated to the Runcorn Inspector to deal with. No cases of overcrowding were met with. No defects were noticed, the general cleanliness and repair of the boats inspected being quite satisfactory. The emptying of bilge water on manure boats is still closely watched. Six boats were met carrying manure. No case of infectious disease was met with during the year, nor even any case of illness. This last remark has been made annually for considerably over 20 years."

Sanitary Inspections.

In order to enable me to form a true estimate of the activity of the Sanitary Authorities of the several districts in the Administrative County, I drew up a special schedule which almost every official concerned has been kind enough to fill up for me. My thanks are due to those concerned for the trouble they have taken in this matter. The schedule was one on which records were to be entered of:—

- (a) The number and nature of inspections made ;
 - (b) The number of statutory and informal notices served ;
 - (c) The result of service of such notices ;
 - i.e.* (1) Complied with ;
 - (2) Remaining in hand ;
 - (3) Prosecutions instituted ;
 - (4) „ pending.
- 

NAME OF DISTRICT.	Total Number of Inspections.	Number of Notices served.		Result of Service of Notices.			
		Statutory.	Informal.	Notice complied with.	Remaining in hand.	Prosecutions.	
						Insti- tuted.	Pend- ing.
MUNICIPAL BOROUGHES.							
Congleton ... ..	...					
Crewe	5615	146	884	869	103	5	
Dukinfield	7587	3	28	20	11		
Hyde	3155	479	137	378	27		
Macclesfield ... ..	...		No information				
Stalybridge	1904	30	535	439	125	1	
Wallasey	36173	1306	3258	4297	107	11	
URBAN DISTRICTS.							
Alderley Edge	725		97	97			
Alsager	805		95	89	6		
Altrincham	331	46	2	39	9		
Ashton-upon-Mersey	165	22	22				
Higher Bebington	156	7	10	10			
Lower Bebington	1537	48	612	594	18		
Bollington	1695	22	55	53	31		
Bowdon	692	1	278	100	179		
Bredbury and Romiley	1601	74	22	22	52		
Bromborough	663	1	18	16	3		
Buglawton	87	18					
Cheadle and Gatley	1503	9	54	62	1		
Compstall	236		13	13			
Ellesmere Port & Whitby	1225	8	12	19	1		
Hale	2437	128	336	318	17	1	
Handforth	365	2	12	14			
Hazel Grove and Bramhall	889	1	32	23	10		
Hollingworth	786	16	13	17	4		
Hoole	404		8	8			
Hoylake and West Kirby	1162	11	406	396	21	3	
Knutsford	782	52	53	95	10		
Lymm	705	49	233	148	134		
Marple	265	4	169	141	32	1	
Middlewich	414	6					
Mottram	4949		75	70	5		
Nantwich	3204		36	33	5		
Neston and Parkgate	781	3	89				
Northwich	6731	130	417	524	33		
Runcorn ... ..	...	15	247				
Sale	440	8	75	75	4		
Sandbach	696	1	104	85	20		
Tarporley	899	7	44	37	7		
Wilmslow	697	2	58	52	8		
Winsford	3910	58	863	703	218		
Yeardsley-cum-Whaley	839		38	38			
RURAL DISTRICTS.							
Bucklow	5742	255	1465	618	56	3	
Chester	647	7	106	63	7		
Congleton	3463	17	79	83	33	1	
Disley	1299	138	53	110	81		
Macclesfield	1274	209	468	756	338	1	
Malpas	308	2	136	127	11		
Nantwich	12035		353	322	28		
Northwich	1890		577	366		1	
Runcorn	633	4	1	4		1	
Tarvin	2581	29	134	126	34		
Tintwistle	1543	68	46	78	36		
Wirral	1056	50	151	182	7		

Recommendations in Brief.

1.—The following matters of importance from the public health point of view deserve prompt and careful consideration by the several Sanitary Authorities concerned and it is recommended that their attention be drawn to the matters respectively concerning their districts and that they be asked to forward their observations thereon for the consideration of this Committee :—

- (a) The adoption of the Early Notification of Births Act and the carrying out of some scheme for the instruction of women in the general hygiene of infancy and child-life appears to be called for in the Municipal Boroughs of Congleton, Crewe and Dukinfield and in the Urban Districts of Altrincham, Ellesmere Port, Hoole, Runcorn and Winsford.
- (b) The programme of measures which might be adopted towards the prevention of the spread of pulmonary tuberculosis appears to be incomplete in the Urban Districts of Alderley Edge, Higher Bebington, Compstall, Handforth, Sale and the Rural Districts of Disley, Macclesfield, Runcorn and the Wirral: the provision of shelters for home use in the case of pulmonary tuberculosis has not, I believe, been undertaken by any single Council in the Administrative County.
- (c) The taking and recording of the pulse and temperature by midwives appears to be very largely disregarded in a number of districts and I recommend that District Medical Officers of Health should be invited to make arrangements for the practical instruction of midwives in this very important matter in the necessary cases.
- (d) The water supply is inadequate in the following districts :—
 - NANTWICH RURAL DISTRICT—Audlem and a number of surrounding townships.
 - RUNCORN RURAL DISTRICT—A certain number of townships not named: further detailed information is necessary here before the necessity of action can be determined.
 - TARVIN RURAL DISTRICT—Farndon, Burwardsley, Broxton, Tilston, Harthill and Kelsall.
 - TARPORLEY URBAN DISTRICT—Rushton and Utkinton.
 - WIRRAL RURAL DISTRICT—Irby Mill Hill and Pensby.
 - CHESTER RURAL DISTRICT—Mickle Trafford.

- (e) Works of sewerage or sewage disposal appear to be called for in the several districts mentioned on pages 175, 176 and 177 of this Report.
- (f) The work of abolishing privy-middens and substituting the water-carriage system should in my opinion be carried out more rapidly in the Municipal Boroughs of Congleton and Dukinfield and the Urban Districts of Ashton-upon-Mersey and Winsford.
- (g) The provision of a Refuse Destructor should be carefully considered by the Councils of the Municipal Boroughs of Crewe, Dukinfield, Hyde and Macclesfield.
- (h) The number of housing inspections carried out under the Housing (Inspection of District) Regulations, 1910, does not appear to have been adequate during the year 1912 in the Municipal Borough of Stalybridge, the Urban Districts of Higher Bebington, Bromborough, Handforth, Hollingworth, Mottram-in-Longdendale, Neston and Parkgate and the Rural District of Tarvin.

2.—The appointment of a Sanitary Inspector possessed of sufficient engineering knowledge to enable him to deal effectively with questions of sewage disposal and water supply and who would be competent to undertake other inspectorial work, under the supervision of the County Medical Officer of Health, has in my opinion become necessary and I recommend that such an officer be appointed at an early date, the terms and conditions of appointment to be arranged by a Sub-Committee of this Committee.

3.—That a leaflet of instruction dealing with precautions against cancer and malignant disease be drawn up in simple language and that copies be furnished to District Medical Officers of Health, to whom it should be intimated that further copies for distribution will be supplied at cost price.

4.—That the attention of the Clerks of all the Rural District Councils in the Administrative County be drawn to Section 69 (1) and (2) of the Housing and Town Planning Act, 1909, which provides for the forwarding to the Medical Officer of Health of the County Council of copies of representations or complaints of their Medical Officers of Health or inhabitant householders and of information, Closing Orders, &c., respecting houses unfit for human habitation or obstructive buildings and that such Councils be requested to observe the provisions of the said Act.

MEREDITH YOUNG, M.D.,

County Medical Officer of Health.

Administrative County of Chester.

APPENDIX OF STATISTICS

FOR 1912.

TABLE I.—Population, Area, Births, Deaths, &c.—

Showing enumerated and estimated population, area, persons per acre, births and deaths, birth-rates and death-rates, proportion of deaths of infants to births, deaths from seven principal zymotic diseases and corresponding death-rates.

TABLE II.—Mortality—

Shewing deaths from certain causes, classified according to Diseases, Ages and Localities.

TABLE III.—Infectious Disease—

Shewing new cases notified and new cases removed to Hospital classified according to Diseases and Localities and giving particulars as to Isolation Hospital Provision.

NOTE.—The information in these Tables is derived from the returns made by the District Medical Officers of Health on Forms supplied to them by the Local Government Board. The proportion of persons per acre, the deaths from the seven principal zymotic diseases and corresponding death-rates have been added. The population in 1911 and the areas, are from the Report of the Census, 1911.

TABLE I. STATEMENT

prepared from the Reports of Medical Officers of Health of Sanitary Districts in the Administrative County of Chester,
for the year ending 31st December, 1912.

SANITARY DISTRICTS	Population at Census, 1911.	Estimated Population in middle of 1912.	Area in Acres.	Persons to an Acre.	Births.	Birth- rate per 1000 Living.	Deaths.	Death- rate per 1000 Living.	Deaths from							Deaths from Principal Zymotic Diseases.	Principal Zymotic Diseases Death-rate.	Deaths under one year.	Deaths under one Year to 1000 Births.	Is Hospital Isolation for Infectious Diseases provided ?	Name of Medical Officer of Health.	
									Small-pox.	Measles.	Scarlatina.	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea.							
Column Number ...	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
MUNICIPAL BOROUGHES.																						
Congleton	11309	11310	2572	4.39	290	25.6	178	15.7		6	1	1			5	13	1.14	31	106	Yes. West Heath Joint.	Dr. P. M. Davidson.	
Crewe	44960	45342	2184	20.70	1021	22.5	574	12.6		22	2	8	16	2	8	58	1.27	84	82	Yes. Crewe.	Dr. A. B. McMaster.	
Dukinfield	19422	20000	1407	14.21	497	24.3	328	16.4		12	1	1	3	2	20	39	1.95	72	145	Yes. Hyde.	Dr. J. R. S. Park.	
Hyde	33137	33723	3079	10.9	773	22.9	525	15.5		1	2	5	11	2	1	22	.65	87	112	Yes. Hyde.	Dr. J. Bennett.	
Macclesfield	34797	34804	3214	10.82	678	20.8	536	15.9		6	7	2	1	2	12	30	.77	78	115	Yes. Macclesfield.	Dr. J. H. Marsh.	
Stalybridge	26513	26639	3132	8.50	568	21.2	440	16.4		3	2	4	13	2	8	32	1.20	78	137	Small-pox only, Hartshead.	Dr. W. J. Hancock.	
Wallasey	7504	81000	3349	24.18	1791	22.1	914	11.6		19	6	9	15	3	5	57	.70	137	76	Yes. Wallasey.	Dr. T. W. Naylor Barlow.	
	248942	252823	18937	18.3	5618	22.22	3525	13.94		69	21	30	59	13	59	251	1.02	567	100			
OTHER URBAN DISTRICTS.																						
Alderley Edge	3143	3100	678	4.66	48	15.1	38	12.		1					1	2	.63	4	83	Yes. Bucklow Joint and Monsall.	Dr. G. W. Dowling.	
Alsager... ..	2743	2743	2241	1.22	47	17.1	29	10.5							2	2	.72	1	21	Yes. West Heath Joint.	Dr. H. F. Kingston.	
Altrincham	17813	17924	662	27.07	369	20.5	221	12.3		5		2			2	9	.5	30	87	Yes. Altrincham.	Dr. A. Golland	
Ashton-upon-Mersey	7234	7300	1623	4.49	157	21.5	77	10.5		1			1		3	5	.68	10	61	Yes. Monsall.	Dr. C. J. Renshaw.	
Higher Bebington	1689	1704	699	2.43	52	30.5	18	10.5								1	.58	2	38	Yes. Wirral Joint.	Dr. J. B. Yeoman.	
Lower Bebington	11401	11787	1051	11.21	313	26.5	126	10.6		1	1	2			6	10	.84	23	73	Yes. Ditto.	Dr. J. B. Yeoman.	
Bollington	5224	5225	1291	4.04	96	18.3	71	13.5										3	31	Yes. Macclesfield.	Dr. D. W. Main.	
Bowdon	3044	3044	850	3.58	43	11.4	42	13.7		1	1				1	3	.9	3	69	Yes. Altrincham.	Dr. M. Duggan.	
Bredbury and Romiley	8683	888	3990	2.21	177	20.	101	11.4			1	1	1	2		5	.56	15	84	Yes. Hyde.	Dr. F. Cant.	
Bromborough	1974	1984	1678	1.17	48	24.1	16	8.			1				1	2	1.	4	83	Yes. Wirral Jt. and Pool Works.	Dr. J. B. Yeoman.	
Buglawton	1438	1438	2911	.49	26	25.1	28	18.		2						2	1.39	4	111	Yes. West Heath Joint.	Dr. P. M. Davidson.	
Cheadle and Gatley	9913	1062	5037	2.08	162	16.8	108	11.2		1	1	2			2	6	.56	15	92	Yes. Monsall.	Dr. J. H. Godson.	
Compstall	908	912	903	1.00	19	21.	14	15.		2					1	3	3.28	1	52	Yes. Hyde.	Dr. C. H. Hibbert.	
Ellesmere Port & Whitby	10366	11126	3451	3.22	444	39.9	130	11.6		1		2	11		2	16	1.43	45	101	Yes. Wirral Joint.	Dr. J. B. Yeoman.	
Hale	8351	9102	1288	7.06	141	15.4	63	6.9				2			1	3	.32	7	49	Yes. Monsall.	Dr. T. A. Rothwell.	
Handforth	934	936	1311	.71	21	22.5	11	11.8												No.	Dr. A. Nowell.	
Hazel Grove and Bramhall	9631	10303	5447	1.89	174	16.8	123	11.9							2	2	.19	15	86	Yes. Hyde.	Dr. Thos. Moore.	
Hollingworth	2580	2581	2086	1.21	55	21.2	45	17.4		4					1	5	1.93	9	163	Small-pox, Mottram Moor.	Dr. R. Pomfret Wyld	
Hoole	5929	5929	334	17.75	129	23.5	66	12.		2			2			4	.67	12	93	Yes. Chester.	Dr. F. J. Butt.	
Hoylake and West Kirby... ..	14029	14417	2066	6.97	226	15.6	124	8.6		1					1	2	.13	14	61	Yes. Wirral Joint.	Dr. J. B. Yeoman.	
Knutsford	5760	6027	1760	3.42	96	18.6	67	13.		9						9	1.48	9	94	Yes. Monsall.	Dr. T. W. H. Garstang.	
Lymm	4989	5025	4374	2.14	105	20.9	67	3.		2	1		1		2	6	1.19	13	124	Yes. Ditto.	Dr. E. M. de Jong.	
Marple	6483	6300	3055	2.06	105	16.6	79	12.5		3		2				5	.79	5	48	Yes. Hyde.	Dr. H. Burton.	
Middlewich	4909	4918	1082	4.54	122	24.4	47	9.4		1		3			2	6	1.22	11	98	Yes. Northwich Joint and Marbury.	Dr. S. L. Melville.	
Mottram	3049	3049	1084	2.81	50	16.3	43	14.1								1	.32	4	80	Yes. Mottram Moor.	Dr. G. J. Awburn.	
Nantwich	7815	7827	703	11.13	157	20.	109	13.6		1			2		2	5	.63	20	133	Yes. Alvaston Joint.	Dr. J. D. Munro.	
Neston and Parkgate	4596	4651	3267	1.42	115	24.7	52	11.1							2	2	.34	8	69	Yes. Wirral Joint.	Dr. J. B. Yeoman.	
Northwich	18151	18400	1398	13.23	478	25.9	233	12.6		1		3	1	1	4	10	.54	43	89	Yes. Leftwich.	Dr. H. E. Gough.	
Runcorn	17553	18000	1275	14.11	45	26.9	271	15.		4	1	1	6	2	11	25	1.38	56	115	Yes. Runcorn.	Dr. F. McDougall.	
Sale	15014	15406	2006	7.67	341	20.2	143	9.2		4			1	2		7	.45	16	47	Yes. Monsall.	Dr. H. Miall Woodhead.	
Sandbach	5723	5723	2694	2.12	132	25.1	62	10.8							2	2	.34	11	83	Yes. West Heath Jt. Arcld for Smallpox.	Dr. R. Riddell.	
Tarporley	2604	2596	6195	.41	49	18.8	32	12.3											3	69	Yes. Chester.	Dr. W. E. Burton.
Wilmslow	8153	8200	5090	1.61	144	17.5	95	11.5		1		1	1			3	.36	9	62	Yes. Monsall.	Dr. A. Byers.	
Winsford	10770	10811	5779	1.86	284	26.3	169	15.6		25	1	10		2	5	43	2.9	29	103	Yes. Davenham and Marbury.	Dr. T. W. H. Garstang.	
Yeardsley-cum-Whaley	1659	1671	1823	1.26	40	23.9	21	12.5							1	1	.59	5	125	Yes. Hyde and High Peak.	Dr. T. A. Welch.	
	244085	249652	80732	3.09	5460	21.87	2939	11.77		73	8	31	28	10	57	107	.82	459	84			
RURAL DISTRICTS																						
Bucklow	22868	23262	57656	.40	408	18.	240	10.8		5					4	9	.38	23	59	Yes. Monsall.	Dr. T. W. H. Garstang.	
Chester	12447	12629	34266	.36	217	17.1	122	9.3					2			2	.15	15	69	Yes. Chester.	Dr. W. E. Burton.	
Congleton	12821	12845	40152	.31	253	19.6	180	14.		3	1	2	2		2	10	.77	28	110	Yes. West Heath Joint.	Dr. C. H. Wentworth-Bennett	
Disley	2958	3078	2466	1.24	74	24.	42	13.6										3	40	Yes. Hyde.	Dr. C. J. Bennett	
Macclesfield	16628	16744	79495	.21	293	17.4	206	12.3		2	2				2	6	.35	22	75	Yes. Macclesfield and Higher Sutton	Dr. R. Proudfoot.	
Malpas	4643	4662	21406	.21	97	20.8	61	13.		2						3	.64	6	61	Yes. Chester. [for Small-pox.	Dr. W. E. Burton.	
Nantwich	24995	25217	98467	.25	532	21.0	323	12.7			2		9	2	2	15	.59	49	92	Yes. Nantwich Joint and Small-pox.	Dr. R. T. Turner.	
Northwich	23270	23400	54308	.43	536	22.9	291	12.4														

TABLE II.—MORTALITY.

Showing deaths from subjoined causes during the year ending December 31st, 1912, classified according to Diseases and Localities.

DISEASES.	Enteric Fever.	Small-pox.	Measles.	Scarlet Fever.	Whooping cough.	Diphtheria and Croup.	Influenza.	Erysipelas.	Cerebro Spinal Fever.	Phthisis.	Tuberculous Meningitis.	Other Tubercular Diseases.	Rheumatic Fever.	Cancer, Malignant Disease.	Branchitis.	Broncho Pneumonia.	Pneumonia.	Other Diseases of Respiratory Organs.	Diarrhea and Enteritis.	Appendicitis and Typhitis.	Alcoholism.	Cirrhosis of Liver.	Nephritis and Bright's Disease.	Puerperal Fever.	Other Accidents and Diseases of Pregnancy, Congenital Deformity and Malformation.	Violent Deaths.	Suicides.		
SANITARY DISTRICTS																													
Municipal Boroughs.																													
Congleton .....	...	..	6	1		1	1			13	3	4	...	11	23	...	11	2	5	..				4	..	...	7	10	1
Crewe	2	..	22	2	16	8	4	2		38	12	9	3	44	43	16	33	10	18	4			5	9	...	1	38	20	2
Dakinfield	2		12	1	3	1		1		25	7	5	3	11	24		33	1	20	1		3	8	1	6	30	11	2	
Hyde	2		1	2	11	5	5			33	1	9	2	35	53		63	1	1	2	3	1	12	2	5	34	9	5	
Macclesfield	2	...	6	7	1	2	3	1	...	39	7	6	1	33	38	...	28	4	12	2		5	37	...	2	32	11	2	
Stalybridge	2		3	2	13	4	2	1	...	24	2	9	3	26	66	...	34	10	8	4	...	7	10	...	5	23	7		
Wallasey	3		19	6	15	9	8	1	..	68	12	13	4	81	45	...	103	6	5	5	3	7	24	4	8	62	31	5	
	13	..	69	21	59	30	23	6	...	240	44	55	16	241	292	16	295	34	69	18	7	28	104	7	27	226	99	22	
Other Urban Districts.																													
Alderley Edge.....	...	...	1	...	...	...	...	...		3	...	...		6	4	...		...	1	...		...		1	...	3	1	1	
Alsager .....	...	...	...	...	...	...	...	...		1	...	...		2	...		7	...	2	...		...	...	...	...	...	3	2	
Altrincham .....	...	...	5	...	...	2	1	...	...	31	2	1	3	15	18	...	13	3	2	1	2	5	6	2	...	14	7	2	
Ashton-upon-Mersey ..	...	..	1	...	1	...	...	...		4	1	...	1	6	9	...	3	..	3	1	1	...	2	...	...	4	...	2	
Higher Bebington	1		..	...	..	...	...	...		3	1	...		2	...		2	...	...	...	...	...	...	...	...	2	...	...
Lower Bebington .....	...		1	1		2	4	1	...	5	4	5		7	9	...	8	4	6				6	1	13	2	...	...
Bollington.....	...	...	...	...	...	1	...	...		4	..	...		8	9	...		3	...	1			1	4	...	1	3	2	...
Bowdon .....	...	...	1	1	...	...	...	...		1	...	...		5	1	...	2	...	1	...			1	...	...	1	4	2	
Bredbury and Romiley ..	2			1	1	1				6	2	2	1	8	7		6	..			1	1		6	...	1	8	1	1
Bromborough .....			...	1	...	...	...	...		2	1	...		2	1	...		1	1	...	...	...	...	...	...	2	...	...
Buglawton .....	...	...	2	...	...		...	...		1	1			1	4	...	1	...	...	...	...	...	1	...	...	...	4	...	
Chaddle and Gatley .....	...	...	1	1	..	2	1	...		5	1	2		11	10	...	19	1	2	...	...	...	2	...	1	8	1	...	
Compstall.....	...	...	2	...	...	...	...	...		1	...	1			...			1	...	...	...	...	...	...	...	...	...	1	
Ellesmere Port and Whitby .....	...	...	1	..	11	2		1	...	6	6	3	...	5	8	...	17	1	2	...	...	...	2	2	2	21	8	...	...
Hale .....	...	...	...	...	2		...	...		3	...	2	1	7	4	...	5	...	1	1	...		3	..	1	1	...	...
Handforth .....	...	...	...	...	...	...	...	...		3	...	...		1	1	...	2	...	...	...	...	...	...	...	...	...	...	...
Hazel Grove and Branhall .....	...	...	...	...	...	1	...	...		8	3	4	...	16	15	...	13	...	2	1	..	1	2	...	9	6	1	...	
Hollingsworth .....	...	...	...	...	...	...	...	...		3	1	...		1	9	...	3	1	1	...	...	...	...	...	...	1	2	...	...
Hoole .....	...	...	2		2		...	...		4	3	1	...	6	11	...	6	...	...	...	...	...	1	...	1	3	2	...	...
Hoylake and West Kirby.....	...	...	1	...	...		2	...		11	4	2	...	13	10	...	6	2	1	1	1	..	2	...	...	9	5	...	
Knutsford .....	...	...	9	...	...	...	...	...		4	...	...		6	5	...	1	...	...	...	1	...	7		1	7	...	...
Lymm .....	...	...	2	1	1		4	...		1	2	...		2	4	...	1	...	2	1	...	2	1	...	1	8	3	...	
Marple .....	...	...	3	...	...	2	...	...		2	1	1	...	7	14	...	2	...			1	1	...	...	...	3	1	1	
Middlewich .....	...	...	1	...	...	3	...	...		...	...	...		3	5	...	5	...	2	1	...	1	1	...	...	5	1	...	
Mottram .....	...	...	...	1	...	...	...	...		1	...	...		2	7	...	2	1	...	...	...	...	...	...	...	2	2	1	
Nantwich .....	...	...	1		2	...	...	...		4	1	3		15	12	...	12	1	2	1		2	2	..	8	4	1		
Neston and Parkgate .....	...	...	...	...	...	...	...	...		4	...	1		6	4	...	4	...	2	...	...	...	4	...	1	2	1	1	
Northwich	1	..	1		1	3	2	1	...	15	...	9	2	17	9	...	17	5	4	1	...	4	10	...	1	19	13	1	
Runcorn	2		4	1	6	1	5	...	...	13	4	9	3	10	14	...	30	...	11	...	1			1	2	22	9	4	
Sale.....	2	..	4		1		1	...		5	...	2	..	15	14	...	13	3	...	...		1	8	...	2	2	3	2	
Sandbach .....	...	...	...	...	...	...	...	...		1	2	2	1	2	...		4	1	2	...	...	1	4	...	...	6	1	...	
Tarporley .....	...	...	...	...	...	...	...	...		2	...	1		3	4	...	1	...	...	...	...	1	2	...	...	1	2	1	
Wilmslow .....	...	...	1	...	1	1	3	1	...	8	1	1	...	6	10	...	4	...	...	...	2		3	3	..	4	3	2	
Winsford	2		25	1	..	10	1	...		8	1	2	...	9	6	...	11	...	5	1	...		5	1	1	13	5	1	
Yeardsley-cum-Whaley .....	...	...	...	...	...	...	...	...		...	...	...		2	2	...	2	...	1	1	...	...	...	...	...	3	...	...
	10	...	69	8	28	31	26	4	...	171	42	54	12	227	240	...	222	27	57	14	8	23	86	6	17	207	96	27	
Rural Districts.																													
Bucklow .....	...	...	5		...	...	5	...		15	2	4	1	22	17	...	13	4	4	2	...	1	5	...	2	11	12	3	
Chester .....	...	...	...	2	...	1	...	...		11	...	1	..	6	5	...	5	...	...	...	...	1	3	...	2	8	6	...	
Congleton .....	...		3	1	2	2	2	...		3	...	...		17	4	...	17	...	2	3	2	2	3	...	4	14	10	1	
Disley .....	...	...	...	...	...	...	...	...		1	...	1		5	2	...	3	...	...	...	1	...	2	...	...	...	...	...
Macclesfield	2	2	...	...	...	2	...	...		8	...	1	2	21	19	...	15	2	2	2		1	7		1	9	9	1	
Malpas .....	...	...	2		1	...	...	...		1	...	1	1	5	3	...	4	...	...	...	...	...	...	...	...	2	4	...	
Nantwich	2	..	2	9	...	3	1	...	...	18	4	8	...	26	15	...	21	8	2	4	...	2	7	1	5	9	11	3	
Northwich	2		6	...	...	4	1	...		10	...	6	1	23	8	...	17	5	4	1	...	2	6	2	2	27	13	...	
Runcorn	2		...	1	2	2	1	...		18	4	...		20	28	...	14	1	2	4	3	1	10	...	2	26	14	...	
Tarvin .....	...	...	1	3		2		...		6	1	1	...	16	12	...	5	5	...	...	...	1	4	...	...	11	5	2	
Tintwistle .....	...	...	1	...	...	...	...	...		1	...	...		...	...	...	1	...	...	...	...	2	...	...	...	5	...	...
Wirral .....	...	...	1	2	4	5		...		16	3	...		21	13	...	10	1	2	...	...	4	6	...	1	16	3	2	
	8	...	20	8	22	13	18	2		108	14	23	5	182	126		125	26	18	16	6	17	53	3	19	138	87	12	
Administrative County.																													
	29		158	37	109	74	87	12		519	100	132	33	650	658	16	642	87	144	48	21	68	243	16	63	571	282	61	

TABLE III.—INFECTIOUS DISEASE.

Showing cases notified and cases removed to Hospital during the year ending December 31st, 1912, classified according to Diseases and Localities, and giving particulars as to Isolation Hospital Provision.

SANITARY DISTRICTS.	Number of cases notified in each District.										Number of cases removed to Hospital from each District.										Is Hospital Isolation provided?			
	Small-pox.	Cholera.	Diphtheria including Membranous Croup.	Erysipelas.	Scarlet Fever.	Typhus Fever.	Enteric Fever.	Continued Fever.	Puerperal Fever.	Phthisis.	TOTAL.	Small-pox.	Cholera.	Diphtheria including Membranous Croup.	Erysipelas.	Scarlet Fever.	Typhus Fever.	Enteric Fever.	Relapsing Fever.	Continued Fever.		Puerperal Fever.	Phthisis.	TOTAL.
Municipal Boroughs.																								
Congleton	1	...	17	9	23	...	1	...	1	31	83	...	...	6	...	5	...	1	...	...	...	...	12	Yes. West Heath Joint.
Crewe	93	18	127	...	3	...	1	53	295	...	...	82	...	111	...	2	...	...	...	7	202	Yes. Crewe
Dnkinfield	10	10	16	...	6	...	...	47	89	...	...	...	...	...	...	...	...	...	...	...	...	Yes. Hyde.
Hyde	30	37	15	...	9	...	2	35	128	...	...	18	...	14	...	5	...	...	...	...	37	Yes. Ditto.
Macclesfield.....	19	15	289	...	9	...	...	86	418	...	...	6	...	160	...	5	...	...	...	17	188	Yes. Macclesfield.
Stalybridge	9	21	58	...	9	...	...	78	173	...	...	...	...	...	...	...	...	...	...	...	...	Small-pox only, Joint Board's, Hartshead.
Wallasey	1	...	75	28	307	...	16	...	3	178	606	1	...	39	...	205	...	7	...	...	...	32	234	Yes. Wallasey.
	2	...	253	138	835	...	53	...	7	504	1792	1	...	151	...	495	...	20	...	...	...	56	723	
Other Urban Districts.																								
Alderley Edge	2	12	...	...	...	...	6	20	...	...	...	...	11	...	...	...	...	...	...	11	Yes. Backlow Joint and Monsall.
Alsager	12	1	29	...	...	...	...	9	51	...	...	...	...	...	...	...	...	...	...	...	...	Yes. West Heath Joint.
Altrincham	15	9	48	...	4	...	2	60	138	...	...	10	...	46	...	4	...	...	1	16	77	Yes. Altrincham.
Ashton-upon-Mersey	6	8	...	1	...	...	21	36	...	...	...	...	...	...	1	...	...	...	...	1	Yes. Monsall.
Higher Bebington	8	1	7	...	...	...	...	4	23	...	...	8	1	4	...	...	...	...	...	...	13	Yes. Wirral Joint.
Lower Bebington	16	8	25	...	...	...	2	18	69	...	...	10	2	22	...	...	...	...	2	4	40	Yes. Ditto.
Bollington.....	3	...	1	...	...	8	12	...	...	...	...	3	...	...	...	...	...	...	3	Yes. Macclesfield.
Bowdon	1	1	11	...	...	...	...	2	15	...	...	...	...	10	...	...	...	...	...	...	10	Yes. Altrincham.
Bredbury and Romiley	14	9	43	...	2	...	1	19	88	...	...	3	...	9	...	1	...	...	...	...	13	Yes. Hyde.
Bromborough	2	1	14	...	...	...	...	3	20	...	...	1	...	13	...	...	...	...	...	...	14	Yes. Wirral Joint and Pool Works Village.
Buglawton.....	4	1	...	...	...	...	...	6	11	...	...	2	...	...	...	...	...	...	...	...	2	Yes. West Heath Joint.
Cheadle and Gatley	17	7	41	...	3	...	1	22	91	...	...	6	3	23	...	...	...	...	...	...	32	Yes. Monsall.
Compstall.....	1	1	8	...	...	...	...	...	10	...	...	1	...	4	...	...	...	...	...	...	5	Yes. Hyde.
Ellesmere Port and Whitby	19	15	52	...	1	...	...	27	114	...	...	11	1	35	...	1	...	...	...	17	65	Yes. Wirral Joint.
Hale	10	2	34	...	...	...	...	9	55	...	...	8	...	23	...	...	...	...	...	...	29	Yes. Monsall.
Handforth	1	...	...	3	4	...	...	...	...	...	...	...	...	...	...	...	...	No.
Hazel Grove and Bramhall	2	3	17	...	...	...	...	8	30	...	...	...	...	...	...	...	...	...	...	...	...	Yes. Hyde.
Hollingworth	3	...	...	3	...	...	2	8	...	...	...	...	...	...	...	...	...	...	...	...	Small-pox Mottram Moor.
Hooile	5	3	3	...	...	...	...	14	25	...	...	4	...	1	...	...	...	...	...	...	5	Yes. Chester.
Hoylake and West Kirby	21	2	92	...	4	...	1	46	166	...	...	17	...	73	...	1	...	...	1	11	103	Yes. Wirral Joint.
Knutsford	1	1	f	...	...	...	...	13	21	...	...	1	...	3	...	...	...	...	...	...	4	Yes. Monsall.
Lymm	6	3	...	1	...	...	...	10	...	...	...	...	...	...	...	...	...	...	...	...	Yes. Ditto.
Marple	4	1	4	...	1	...	...	...	10	...	...	3	...	...	1	...	...	...	...	...	4	Yes. Hyde.
Middlewich	6	...	3	...	3	...	...	3	15	...	...	3	...	1	...	3	...	...	...	...	7	Yes. Northwich Joint and Marbury.
Mottram	2	1	...	...	...	...	5	8	...	...	...	...	...	...	...	...	...	...	...	...	Yes. Mottram Moor.
Nantwich	7	5	9	...	...	...	...	9	30	...	...	5	...	6	...	...	...	...	...	...	11	Yes. Alvaston Joint.
Neston and Parkgate.....	2	...	4	...	...	...	...	15	21	...	...	1	...	2	...	...	...	...	...	3	6	Yes. Wirral Joint.
Northwich.....	47	8	13	...	1	...	1	34	104	...	...	7	...	6	...	...	...	...	...	...	13	Yes. Leftwich.
Runcorn	50	25	25	...	23	1	1	34	159	...	...	1	...	...	13	...	...	...	...	...	14	Yes. Rancorn.
Sale.....	4	6	18	...	4	...	...	37	87	...	...	1	...	5	...	...	...	...	...	...	8	Yes. Monsall.
Sandbach	1	...	8	...	9	...	...	...	...	7	25	1	...	...	...	4	...	...	...	...	...	8	13	Yes. West Heath Joint, Arolid for Small-pox.
Tarporley	1	...	7	...	...	...	...	3	11	...	...	...	...	2	...	...	...	...	...	...	2	Yes. Chester.
Wilmslow	1	14	...	1	...	...	14	30	...	...	...	...	7	...	...	...	...	...	...	7	Yes. Monsall.
Winsford	45	15	9	...	16	...	2	16	103	...	...	37	...	8	...	16	...	...	...	...	61	Yes. Davenham and Marbury
Yeardale-cum-Whaley.....	2	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	Yes. Hyde and Hyde Peak.
	1	...	322	145	572	...	70	1	11	477	1599	1	...	138	7	321	...	41	...	...	4	59	571	
Rural Districts.																								
Bucklow	6	5	28	...	2	...	1	32	74	...	...	3	...	19	...	1	...	...	...	...	23	Yes. Monsall.
Chester	5	2	21	...	6	...	1	10	45	...	...	...	...	...	...	...	...	...	...	...	20*	Yes. Chester.
Congleton	61	8	28	...	...	...	...	14	111	...	...	50	...	23	...	...	...	...	...	...	73	Yes. West Heath Joint.
Disley	2	3	...	...	...	...	3	8	...	...	...	...	...	...	...	...	...	...	...	...	Yes. Hyde.
Macclesfield	9	8	80	...	...	...	...	14	109	...	...	4	...	48	...	...	...	...	...	...	52	Yes. Macclesfield and Higher Sutton for Small-pox.
Malpas	1	...	18	...	...	...	...	1	18	...	...	1	...	...	...	...	...	...	...	...	1	Yes. Chester.
Nantwich	35	3	48	...	5	...	1	34	126	...	...	29	...	37	...	2	...	...	1	3	72	Yes. Nantwich Joint and Small-pox.
Northwich	34	10	51	...	5	...	4	29	133	...	...	17	...	31	...	4	...	...	...	...	52	Yes. Northwich Joint.
Runcorn	31	13	31	...	11	...	1	42	129	...	...	15	...	20	...	8	...	...	...	...	43	Yes. Dutton. Moore (Small-pox).
Tarvin	8	2	7	...	1	...	1	9	28	...	...	4	...	...	...	...	...	...	...	...	4	Yes. Chester.
Thitwistle	1	10	...	...	...	...	1	12	...	...	...	...	...	...	...	...	...	...	...	...	Yes. Mottram Moor.
Wirral	29	9	68	...	2	...	...	20	128	...	...	15	2	52	...	1	...	...	...	...	70	Yes. Wirral Joint.
	219	61	391	...	32	...	9	209	921	...	...	138	2	230	...	16	...	...	1	3	410	
Administrative County	3	...	794	344	1798	...	155	1	27	1190	4312	2	...	427	9	1046	...	77	...	...	5	118	1704	

* The total only for the Chester Rural District is supplied.

